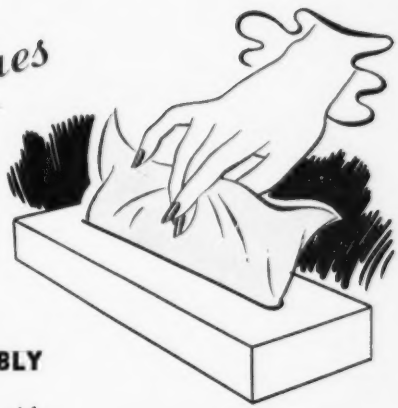
Paper
TRADE JOURNAL
JUNE 16, 1949
PUBLISHED WEEKLY

For Facial Tissues



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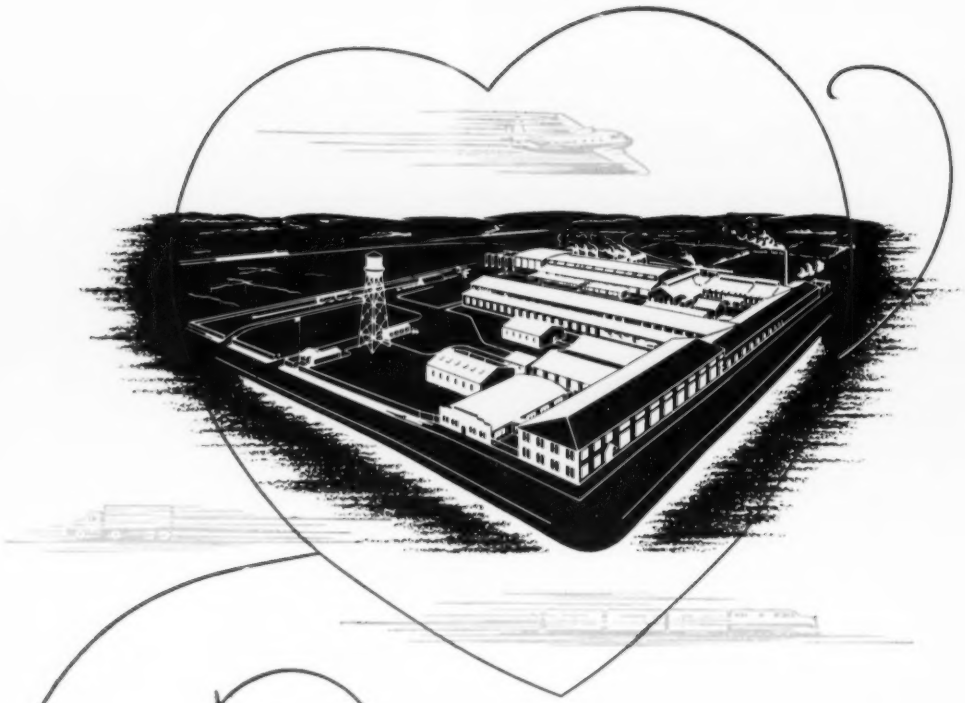

IN THE HEART OF SUPPLIERS

Yes . . . and, too, Downingtown is only a few miles from Rittenhouse Mill, birthplace of paper making in the United States . . . and within 24 hours motor truck or express rail service of 65% of the paper mills in the United States . . . and close to the Philadelphia Airport, a regular stop of air freight lines serving our Pacific Coast and the entire world.

What does this mean to you? Papermaking and its machinery is the heritage of most of our employees, their forefathers having been "in the business." Further, as you realize, no paper machinery manufacturer makes everything that goes into the final assembly of "almost anything" you order—some typical examples being anti-friction bearings, wire and rubber covering for rolls.

Our location, "In the Heart of Suppliers," makes it easy to obtain quickly whatever is needed for your order. Also, the engineering departments of suppliers are handy for consultation on new problems. Further, though "Praise Allah it may never happen," we are strategically located to give immediate action on breakdown repairs, no matter where you are.

Before you place your next order, consider these natural advantages and remember, our modern plant includes one of the largest paper machinery engineering departments, a pattern shop, foundry, machine shops, assembly bays, testing departments and, of course, a laboratory for product development. Try Downingtown ... Call 500.

DOWNINGTOWN MANUFACTURING COMPANY

DOWNINGTOWN, PA.

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Du Pont Announces ALATHON™

Polythene Resins

New paper coating materials with many unusual features

"ALATHON" PAPER COATINGS ARE:
STRONG—TOUGH—GLOSSY
NON-BLOCKING
WATER-RESISTANT
CHEMICAL-RESISTANT
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USE "ALATHON" FOR:
MULTIWALL PAPER BAGS
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BUTTER CARTONS
BAKERY TRAYS
AND OTHERS

New—"Alathon" Polythene Resin coatings make paper resistant to water, acids, alkalis, solvents, caustics, fertilizers, cement, surface active agents, vegetable oils, hot beverages and many other substances. Bags and containers coated with new "Alathon" have maximum heat seal strength . . . successfully resist materials that could never before be packaged in paper alone. Bend it . . . Crease it . . . Abuse it!—Paper coated with "Alathon" can take it!

SEND THIS COUPON TODAY for a new booklet on Du Pont "Alathon" Polythene Resins. It gives the latest facts on these new coating materials and their wide blends. We will be glad to work with you in applying "Alathon" to your operations.

PTJ-1

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Wilmington 98, Delaware

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Firm_____

Address_____ State_____

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This modern development is designed to give you more service with less trouble than any other belt drive.

First of all, there's only *one* belt...a flat leather belt. It grips and pulls as a unit . . . no danger of separate, uneven tensions. The load is carried evenly by the entire belt width . . . no part of it can loaf. You get *uniform pulling power across the pulley faces.*

The tension-controlling motor base automatically keeps the belt at the proper tension to transmit power efficiently. It maintains *uniform pulling power around the pulleys.*

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MEMBER

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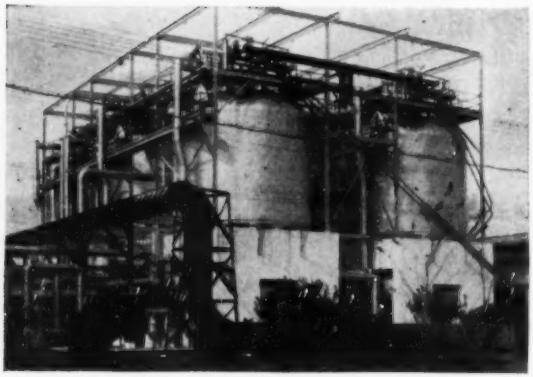
SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*SUPERHEATED WATER . . .



Mining operations are most successfully carried out if the water pumped into the sulphur deposit is heated under pressure to a temperature of about 320° F. For large scale mining, enormous quantities of water are required, so, a primary requisite is an adequate supply of suitable water and an efficient power plant in which to heat it.

To insure a continuous supply of water at Newgulf, it is the practice to use river water pumped in time of flood or full flow and stored in large reservoirs. This supply is supplemented, when necessary, with well water. Water so obtained is seldom suitable for use in boilers or mine water heaters without being treated first because of natural salts in solution. Softening by chemical treatment is necessary to prevent deposition of scale on boiler tubes and hot water lines.

Loading operations at one of the huge vats of Sulphur at our Newgulf, Texas mine. Such mountains of Sulphur are constantly being built at our mines, from which shipments are continually made.

TEXAS GULF SULPHUR CO. INC.

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Mines: Newgulf and Moss Bluff, Texas

Paper TRADE JOURNAL

TRENDS

Office of the PAPER TRADE JOURNAL, Wednesday, June 15, 1949.

Kraft Strengthens

Price of kraft wrapping made news last week when it dropped a cent on Monday, indicated it would recoup to $6.75 on Wednesday, wavered on Thursday, and firmed at $6.25 on Friday. Mills which had moved down to meet competition on Monday informed dealers on Wednesday that costs would not permit so low a price, and that it immediately must be upped, probably to $6.75 again. By Thursday, bottom level of $6.25 was announced by a leading producer, and other mills firmed at that price on Friday.

There is considerable evidence that strengthening of kraft has set in. Higher brackets for used kraft bag waste and new brown kraft cuts were reported from Boston and Chicago. Southern kraft pulp showed no softening from present levels; to the contrary, large integrated producers have withdrawn. So long as costs of raw materials and labor remain in present brackets, it appears likely that kraft wrapping has hit bottom in its price of $6.25 established June 10.

Labor Costs

Labor and production costs of mills which report on monthly labor and operating survey to the A.P.P.A., chart the trend of controlling factors in paper and pulp prices. Table 1 of the survey (referred to but not shown) reports average weekly hours of work for 265 mills during April as 40.5 with average days worked 25.6. Table 2 shows average hourly earnings during April as $1.449.

Costs of labor per ton of paper produced during April 26 at 218 mills reporting averaged $24.16, varying from $115.92 for 0 to 10 tons to $20.00 for over 200 tons.

For the same month, labor cost per ton of *book* was $31.65; rag content, $81.85; chemical wood pulp grades, $48.89; kraft, $18.27; glassine and greaseproof, $69.72; tissues, $25.95; newsprint, $11.52; chemical pulp, $11.66; mechanical pulp, $7.81.

A Fourth Round

Instability of the current labor situation is an omni-present element which contrives to prevent orderly readjustment of the market at competitive prices.

Wage developments of the next weeks may go far toward determining the extent of the business recession and the promptness of the recovery, according to *The Guaranty Survey*, monthly review of Guaranty Trust Co. of N.Y. Labor and management in the so-called key industries are preparing to negotiate new contracts against a background of declining prices and business activity.

"A substantial increase in labor costs under present conditions would confront employers with a serious dilemma," says the *Survey*. "If they should attempt to raise prices to compensate for the higher costs, consumer resistance would stiffen, industrial expansion programs would be further curtailed, goods would go unsold, and employment opportunities would diminish. If prices were held down, operations would become unprofitable and unemployment would come about either through voluntary curtailment of output or through a rise in the rate of failures. In either case, many workers would find they have priced themselves, or have been priced, out of their jobs."

The necessity for offering strong resistance to new demands is held to be obvious. "When demand weakens, the way to strengthen it is to offer inducements in the form of lower prices," states the *Survey*. To a limited extent, prices can be lowered by reducing profit margins. "Generally speaking, however, margins between unit costs and selling prices already are narrow. The large business earnings of the postwar period have been due to the heavy volume of production and sales, not to a wide spread between costs and selling prices. Reported profits in most cases make no allowance for the high cost of replacing wornout and obsolete plant and equipment, or for the fact that a large proportion of the needs for additional risk capital must now be met by the reinvestment of earnings. Earnings also contain a large element of "paper" profit on inventories, a form of profit that vanishes when prices cease to rise, and that is transformed into a loss when prices decline. Substantial and general price reductions are possible, therefore, only if costs can be reduced; and a fourth round of wage increases would run directly counter to this need."

Economic Statesmanship

The position that organized labor has attained demands the exercise of economic statesmanship, voices the *Survey*. "It is necessary to recognize that the interests of workers are inextricably bound up with those of the economy as a whole. A period of severe industrial strife with heavy loss of production and income, or an acceptance of wage costs that prevent needed price readjustments, is an alternative that the country cannot afford to face under present conditions."

Indexes

Index of general business activity for the week ended June 4 dipped to 140.8 from 143.9 in the preceding week, compared with 146.0 in the corresponding week of 1948. Index of paperboard production declined to 161.9 from 163.9 in the preceding week, compared with 196.1 in the corresponding week of 1948.

Comparative ratios of U.S. paper and paperboard production to mill capacity, as reported by AP&PA are:

	June 4 1949	May 28 1949	June 5 1948	June 6 1947	June 7 1946
Paper**	77.7	‡83.2	92.9	106.7	104.0
Paperboard ..	65.0	77.0	87.0	98.0	96.0

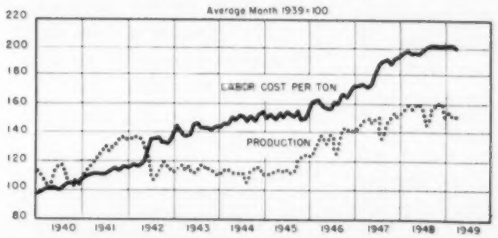
** Capacity in tons: 179,806; 1948, 178,983.
‡ Revised.

Paperboard Production (Tons)

	June 4 1949	May 28 1949	June 5 1948
Production	137,521	157,614	168,802
New Orders	183,749	149,534	222,226
Unfilled Orders ...	283,585	238,745	402,625

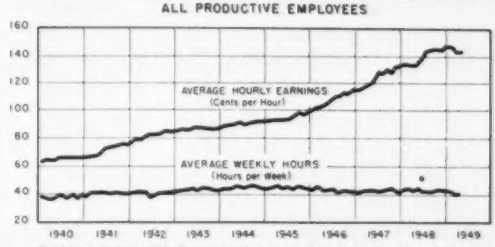
Percent of Activity, Current 65%; Year, 81%.

PAPER PRODUCTION AND OVERALL LABOR COST PER TON OF PAPER (PULP OPERATIONS NOT INCLUDED)



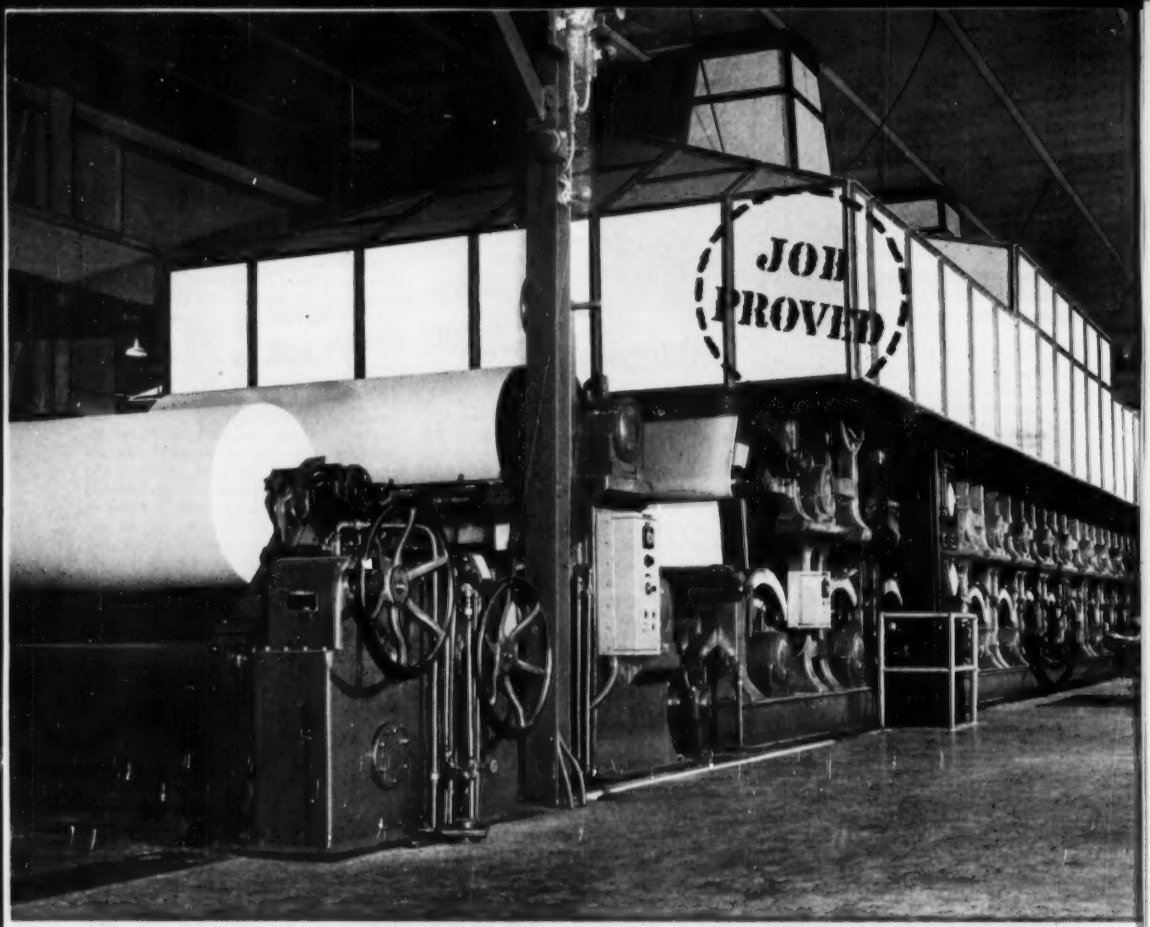
The above chart shows the average labor cost per ton of paper (not including pulp operations) as indicated by the reports from mills contributing to the Monthly Labor and Operating Survey. For the sake of comparison, total paper production is also shown on the chart.

AVERAGE HOURLY EARNINGS AND AVERAGE WEEKLY HOURS OF WORK ALL PRODUCTIVE EMPLOYEES



The above chart shows graphically the historical records of average hourly earnings, (Table 2) and average weekly hours of work, (Table 1). The hourly earnings rate is obtained by dividing pay roll by the man hours actually worked. Thus the hourly rate shown is distorted by whatever overtime earnings are included in the pay rolls.

Source: American Pulp & Paper Ass'n.



BEARINGS LAST 8 TIMES LONGER

Sun Grease Eliminates Frequent Bearing Failures in Papermaking Machines

A paper mill had trouble with the felt-roll roller bearings on one of its machines. The lubricating greases oxidized and formed heavy sludge deposits. Bearings never lasted more than three months before they had to be cleaned out, repacked, or replaced. Not only did this add heavily to costs, but poor lubrication caused power losses.

Sun engineers were consulted, and a "Job Proved" Sun Roller Bearing Grease was put to work. That was two years ago. Since then, no bearings have had to be replaced because of inadequate lubrication. In fact, a recent inspection showed all of them in such good condition that even the customary cleaning was not necessary.

This is but one case history among many which show the advantages to be gained from use of Sun "Job Proved" Products. For information about how they can help you, get in touch with the nearest Sun Office. The services of a Sun Engineer are available without obligation.

SUN OIL COMPANY · ***Philadelphia 3, Pa.***
In Canada: Sun Oil Company, Ltd.
Toronto and Montreal

SUN PETROLEUM PRODUCTS

"JOB PROVED" IN EVERY INDUSTRY

SUNOCO

Visit Champion's Texas Plant

HOUSTON, Texas—Brief ceremonies recently, with President Reuben B. Robertson presiding, marked the first Texas production of fine white papers for printing and converting purposes, at the Houston Division of the Champion Paper & Fibre Co. Seventy-five guests toured the Champion site at Pasadena on the Houston Ship Channel and visited with Champion officials. The group afterward attended a dinner at the Houston Country Club.

The block-long machine, which began operation, was transported to Texas on 41 freight and flat cars from its former location at Champion's Hamilton, Ohio, plant.

President Robertson told the guests that, "Champion will now manufacture the first fine papers for printing and converting purposes in Texas, and will make the first "home" use of Texas pulpwood for quality paper stocks."

Prior to the multi-million dollar expansion, Champion manufactured only bleached pulp and *Life* magazine body stock at its Houston plant.

Guests attending the opening ceremonies met these Champion officials: R. B. Robertson, Jr., executive vice-president; Dwight Thomson, vice-president; Herbert Suter, Jr., general sales manager, and W. R. Crute, Houston division manager.

A group of Champion's 75 visitors to see the initial production of fine grade white papers made on the recently installed paper-making machine at the Houston Division's plant. Guests were taken to the Houston Country Club for dinner after the plant tour.

Chartered buses brought Champion's 75 guests from downtown Houston to the Houston Division mill at Pasadena, Texas, on the Houston Ship Channel, for the plant tour and inspection of the new paper-making machine. Reuben B. Robertson, president of Champion, presided at the inaugural ceremony.

Win Western FPSC Awards

SEATTLE, Wash.—The British Columbia Pulp & Paper Co., Ltd., Port Alberni, B.C., was awarded a plaque for the best safety record of the past year among pulp and paper firms participating in the 15th annual Western Forest Products Safety Conference June 1-3. Winners in other industrial divisions were White River Lumber Co., Enumclaw, Wash.; Weyerhaeuser Timber Co., Snoqualmie Falls, Wash.; Long-Bell Lumber Co., Weed, Calif., and J. Neils Lumber Co., Libby, Mont.

A master plaque was presented to the Puget Sound Pulp & Timber Co., Bellingham, Wash., for showing the greatest improvement in its accident-prevention record during the past year.

Participating in the three-day meeting were 130 safety supervisors and management representatives from 86 pulp and paper, plywood, logging and sawmill firms. Featured speaker at the annual banquet June 1 was W. D. Welsh, Crown-Zellerbach Corp., executive from San Francisco.

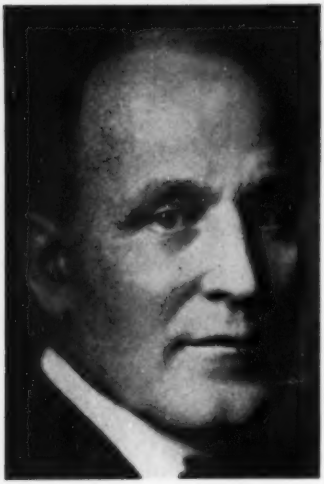
New Officers elected for the next conference year are Byron Oyster, Tacoma, chairman; B. K. Wickwire, Longview, vice-chairman; C. R. Rustemeyer, Vancouver, B.C., secretary; E. H. Crosby, Portland, treasurer, and Jack Brands, Lebanon, Ore.; W. M. Allison, Vancouver, B.C., and G. A. Okerlund, Bellingham, executive committee members.

Maine Grads Get Paper Berths

ORONO, Maine—Peter Calott, a graduate of the paper and forestry course at Maine University, has joined the Graham Paper Co.; Joseph J. Staudinger has joined the Patterson Parchment Co.; and Donald R. Kimbark is now with the Flambeau Paper Co., in charge of the Chicago office.

Midsummer Overhaul Program

CHARLESTON, S. C.—The North Charleston plant of the West Virginia Pulp & Paper Co., which shut down May 29, resumed operations on June 6. According to plant officials, another brief shutdown is contemplated beginning July 1 for the usual mid-summer overhaul.



GEORGE E. GIBSON

—of the Mosinee Paper Mills Co., Chicago organization, was tendered a dinner at Hotel Sherman on June 6 by the Western Division of the Salesmen's Ass'n., of the Paper Industry, to mark his 80th birhtday on that date. . . Special tribute was paid to Mr. Gibson at the dinner by J. Ray Russell of the Marathon Corp.; James H. Coy; Reginald C. Johnson of the Fletcher Paper Co.; Harold Knott of the Wausau Paper Mills Co.; Edward J. Edwards of the Howard Paper Co.; and John R. Diggs of the Mosinee Paper Mills Co. . . Mr. Gibson is a charter member of SAPI and was its president in 1920-21.

Medals for Safe Truck Drivers

GEORGETOWN, S. C. — Drivers who have not had an accident while trucking pulpwood for the International Paper Co.'s Southern Kraft mill here were presented on June 8 with medals by J. E. McCaffrey, head of International's local woodlands division.

Officials said the huge diesel trailer tractors operated by the company have traveled 1,205,126 miles in the last 17 months with a record of only six accidents involved in property damage. Two of these, in which non-company property was damaged, involved costs of $133.55. The remaining four, which damaged only company property, amounted to $2,334.56. Eleven other minor accidents, in which there was no damage, were reported.

'48 Profitable Year for Canada

WASHINGTON — Canada's pulp and paper industry showed substantial profit gains in 1948, according to figures reported to the International Trade Fair, and received here.

Net profits of 26 companies conducting Canadian operations aggregated $155,000,000 in 1948, it was stated. These figures include the International Paper Co., and the Minnesota & Ontario Paper Co., both of which have Canadian and U.S. mills, it was pointed out, although their operations in pulp and paper are largely in Canada. Bulk of the profits are derived from newsprint, the account related.

All of the companies but two of those listed showed 1948 increases over the previous year, it was stated; 22 reported gains of more than ten percent over 1947; 17, more than 20 percent; nine more than 30 percent, and eight over 40 percent, with seven reporting 50 percent gains, five over 70 percent increases compared with 1947.

Named Springfield, Wash., Supt's.

SPRINGFIELD, Ore.—Anthony P. Siebers has been named paper mill superintendent and Huga Trygg pulp mill superintendent at the new Weyerhaeuser Timber Co.'s container board mill soon to start up, here.

Mr. Siebers has for the past 20 years been paper mill superintendent at the Longview Fibre Co., which position he resigned in May 1948, but since that time has continued in a consulting capacity.

Mr. Trygg comes to the Springfield Mill from the Weyerhaeuser Timber Co.'s Longview kraft mill, where he has been shift superintendent since operations started there last year. Previous to joining Weyerhaeuser he was operating superintendent of the kraft pulp mill of Marathon Paper Co., Ltd., of Marathon, Ont. His kraft pulp making background covers work at International Paper Co., Mobile, Ala., and St. Regis Paper Co., Tacoma, Wash.

Paper Men and Suppliers AMA Execs.

NEW YORK — Newly elected to the board of directors of the American Management Ass'n. for terms ending in 1952 are: Cecil Dawson, president of the Dixie Cup Co., Easton, Pa.; George S. Dively, president and general manager of the Harris Seybold Co., Cleveland; Roger L. Putman, president of the Package Machinery Co., Longmeadow, Mass.; and John A. Stephens, vice-president of the U.S. Steel Corp. of Delaware, Pittsburgh. Reelected vice-president of the Association's packaging division is J. D. Malcolmson, technical advisor of the Robert Gair Co., New York.

Gulf States Paper Co. Expands

TUSCALOOSA, Ala. — An expansion program which increased production of kraft paper for bags, counter rolls and wrapping paper from 200 tons daily to more than 350 tons is nearing completion for the Gulf States Paper Corp. here by the H. K. Ferguson Co. Facilities are also being added for the manufacture of high quality white and light-colored papers.

Holly to E. George Lutz

NEW YORK—E. Holly has joined A. George Lutz in a sales capacity. The Lutz company specializes in sales representation in New York City for non-competing paper mills.

FPC Favors Holyoke Private Industry

WASHINGTON — The plan proposed by the Holyoke Water Power Co. is "best adapted" to a comprehensive program for improving and development of the Connecticut River at that site, a Federal Power Commission Presiding Examiner has found, in an initial decision involving two conflicting proposals for a hydroelectric project on the rover at Holyoke.

Examiner Maximilian G. Baron's decision is subject to review by the Commission. However, it provides for issuance of a 50-year license to the company for construction, operation and maintenance of the project.

The examiner found that the second plan, presented by the City of Holyoke Gas & Electric Department "is not economically feasible and is not equally well adapted to a comprehensive plan for development of the Connecticut river at Holyoke. . . ."

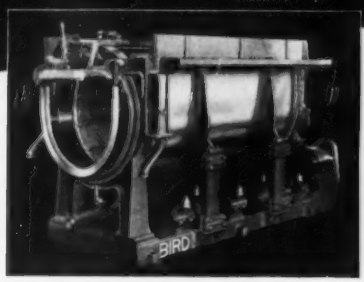
Both the company and the city department originally submitted similar plans, which called for construction of power plants at an existing dam owned by the company, and an ultimate installed generating capacity of 60,000 kilowatts. The Holyoke canal system was to be retained under both plans.

During hearings in February and March the city department modified its program by proposing abandonment of the canal system. This decidedly af-

FEN K. DOSCHER

—vice-president in charge of sales of the Lily-Tulip Cup Corp., and who is president of the Sales Executives Club of New York, presided at the club's June 14 luncheon at Hotel Roosevelt and at the meeting following it, devoted to discussion of "More Sales Through Market Research." . . . Also participating in the speaking program, among others, was L. Rohe Walter, director of public relations of the Flintkote Co., who is president of the New York chapter of the Public Relations Society of America.

NOW



when paper quality is once again essential if you are to maintain a strong competitive position.

NOW IS THE TIME *to replace those old, veteran paper screens with big, modern BIRD SCREENS* having the capacity to permit the finest screen slots for your grade, and to deliver all the clean, well combed, thoroughly individualized fibres the paper machine can take.

If there's the slightest doubt in your mind about the efficiency or economy of your screening operation, now is the time to get in touch with Screen Headquarters:

BIRD MACHINE COMPANY, South Walpole, Massachusetts

90% OF ALL THE PAPER MACHINES IN NORTH AMERICA ARE EQUIPPED WITH BIRD SCREENS

fected the FPC view of the plan, it was revealed in a preliminary comment on the two programs, the Commission examiner having been quite critical of this feature of the city plan.

Pointing out that Holyoke was built around the canal system, which had "become an integral part of the industrial structure of that city" the examiner said the city department's proposal "embodying the abandonment" of the canal "would not be in the public interest."

Differences between the estimated $4,162,000 for the company program, and the more than $12,645,000 involved in the city department's plan also were cited by the Commission examiner. He pointed out that despite the lower cost of the private project, annual benefits would exceed cost by approximately $23,000, while the departmental proposal entailed annual costs and losses that would exceed benefits by $186,600.

The examiner also called attention to the lack of authority on the part of the city department to acquire necessary properties by condemnation or to engage in the required construction and operation outside of the city of Holyoke, as proposed in its application. Neither does it have legislative authority to issue revenue bonds for financing the project, he added. "Therefore," the examiner warned, "the department could not avail itself of a license even if granted."

The company presently sells electricity to industries in Holyoke and South Hadley, and to municipal electrical systems in that city and a number of Massachusetts communities. The city department operates hydro-electric generating units and a steam electric plant for sale of electric energy in Holyoke.

St. Regis Absorbs Taggart

WATERTOWN, N. Y. — Taggart Corp. stockholders on June 8 voted at Baltimore, Md., to merge it with the St. Regis Paper Co. Each record holder of Taggart stock, excluding St. Regis, will be paid $11 a share for the capital stock and St. Regis, as the surviving corporation, will assume Taggart's liabilities and obligations. Taggart stock no longer will be traded on the curb. No decision has been made as to what will be done about some 33,000 shares of Taggart stock not hurned into St. Regis.

Taking Time to Live

BOSTON—Thomas Compton Walsh, a former sales manager of the Hollingsworth & Vose Co., is enjoying life and is very busy on his estate at South Weymouth, Mass. He takes great pleasure in his Tohocowa Golf Course of nine holes, in landscape gardening and in his vegetable garden.

New Hudson Executive Offices

NEW YORK—The Hudson Pulp & Paper Corp., is taking over the fifth floor of the building at 505 Park avenue, to be used as executive offices.

Palmer, Zonner, Plantz Upped

NEW YORK—St. Regis Paper Co. has named Thomas E. Palmer assistant to Benton R. Cancell vice-president in charge of manufacturing in the company's printing, publication and converting paper division, and W. A. Zonner, formerly manager of the Deferiet mill, general manager of manufacturing for the division in New York State, to supervise mill operations at Deferiet, Harrisville and Norfolk. C. H. Plantz, asistant mill manager, succeeds Mr. Zonner as Deferiet mill manager.

Johnson, Reeves, Bauer Elected

WAYNESVILLE, N. C. — Robert E. Johnson, traffic manager of the Ecusta Paper Corp., Pisgah Forest, N. C., was elected president of the Western North Carolina Traffic Club at its recent annual dinner and golf outing at the Waynesville Country Club; Tom Reeves of the Champion Paper & Fibre Co., Canton, N. C., was reelected secretary-treasurer; and M. L. Bauer of the Ecusta Paper Corp. was elected a director. Mr. Johnson was formerly the vice-president.

Gould Fetes Veterans

LYONS FALLS, N. Y. — Twenty-three employes of the Gould Paper Co. received 25-year or more awards at a dinner held early this month. Frank Gould has been employed since 1904 and Ralph C. Peling since 1923. All 23 received either wrist watches or pocket watches, inscribed with their name, date of employment, certificates, and length of service pins.

Warns Against Paternalism

GROTON, Mass. — Former Governor Huntley Spaulding of New Hampshire, an executive of the Spaulding Fibre Co., Inc., North Rochester, N. H., and president of the board of trustees of Lawrence Academy, told the 156th graduating class at the academy on June 4 that a paternalistic Federal Government is threatening their freedom.

Danish Blockboard Plant

WASHINGTON—A new blockboard, made from wood waste, is reported from Denmark, where it will be manufactured by a plant now under construction at Pindstrup. Surface layers of the board are made from shavings and the center from other wood wastes.

Westvaco Advances Williams, Jr.

COVINGTON, Va.—E. Crawley Williams, Jr., general superintendent of the paper mill in the local plant of the West Virginia Pulp & Paper Co., has been promoted to assistant manager in charge of production.

Waters Heads Mersey Paper Co.

BROOKLYN, N.Y. — B. J. Waters has been named president and general manager of the Mersey Paper Co.

St. Regis' Adams Addresses Rotarians

WATERTOWN, N.Y. — William R. Adams, vice-president of the St. Regis Paper Co. in the kraft paper division, addressed members of the Watertown Rotary Club at Hotel Woodruff, June 1. He spoke on "Management."

FORESTRY

Westvaco Plants 4,600 Cutover Acres

SUMMERVILLE, S.C.—Another 4,600 acres of cutover or submarginal land along the Atlantic coast are now spotted with pine seedlings as the result of further successful plantings carried out in recent months by foresters of West Virginia Pulp & Paper Co. Planting teams employed by the company set out approximately 2,700,000 loblolly, slash and spruce pine seedlings during a three-month season ended in March, the timber management division of the company's Southern woodlands office reports.

Seedlings planted by company crews were obtained from the South Carolina state nursery at Wedgefield and the North Carolina state nursery at Clayton.

In South Carolina 2,623,000 seedlings were planted in a 4,513-acre area covering 11 counties. In North Carolina 132 acres in four counties were planted with 90,000 seedlings.

During the season the plantings made last year were examined by company men and reports indicated that a high percentage of more than 2,250,000 seedlings had survived. The report showed that free-ranging stock—horses, cows, pigs, sheep and goats—are damaging the plantations to some extent by biting, scraping and trampling the trees. None of last year's seedlings have been damaged by fire, the report stated.

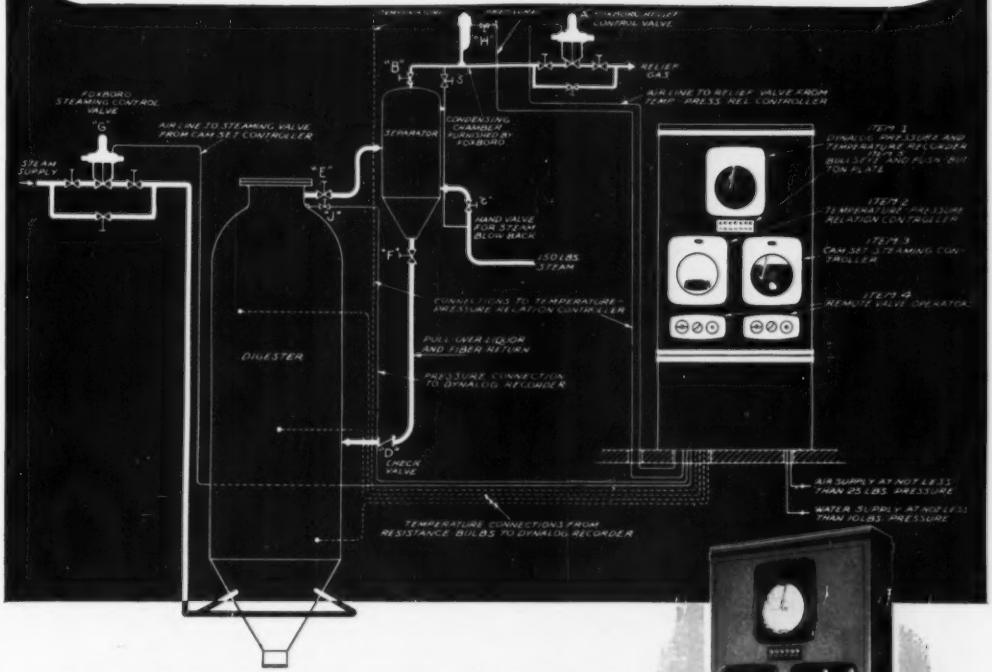
Canada Girds to Battle Budworm

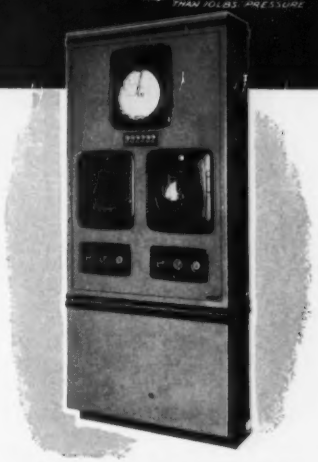
TORONTO—The forests insects division of the Dominion department of agriculture, under the direction of Dr. J. J. de Gryse, is making a last-ditch stand against the spruce budworm, a killer that is destroying Canada's pulpwood forests at the rate of 100 million dollars worth a year. The attack will be launched from a special laboratory now being constructed at Sault Ste. Marie, Ont., and will be waged throughout the western provinces where the killer has reigned for the last 40 years.

The insect is a native of the Gatineau Valley forests about 200 miles north of Ottawa. Swarms of them have spread west to Manitoba and east to New Brunswick. Dr. Gryse and his associates have been trying everything, from DDT sprayed from aircraft to parasite insects and virus disease to knock out the budworm, with very little success.

The special laboratory will be the most elaborate and modern of its kind in the world. The cost of construction has not been disclosed, but is believed

BOOST FIBER YIELD...LOWER STEAM CONSUMPTION
with this Alkaline Digester Control System





FOXBORO Automatic Digester Control Unit with controlled rate of temperature rise. Dynalog Temperature Recorder at top. Beneath are Foxboro Digester Relief Controller and Foxboro Cooking Schedule Controller with cam-set control point.

THE PRE-ENGINEERED Digester Control Unit illustrated contains all the essential instruments for automatically maintaining closer control of cooking time, pressure, temperature and relief . . . a Foxboro Dynalog (Electronic) 3-point Temperature Recorder (with pressure pen), a Cooking Schedule Controller with adjustable cam-set control point and a Digester Relief Controller. The Dynalog Recorder comes with an automatic switching unit which gives temperature readings at three different points in digester or, if preferred, two points in digester and one in circulation line.

This cabinet type of control offers complete centralization and operating convenience. It protects instruments from dust and damage. Furthermore, it provides the benefits of experienced factory methods and materials in the wiring and piping of instruments into a properly integrated assembly. This also permits substantial savings in installation time and cost.

Here's the modern way to improve pulp quality and uniformity . . . to reduce steam, chemical, and labor requirements. Talk over your set-up with a Foxboro engineer. Get facts on installations at other mills. Similar units are available for sulphite processes. Write **The Foxboro Company, 168 Neponset Ave., Foxboro, Mass., U.S.A.**

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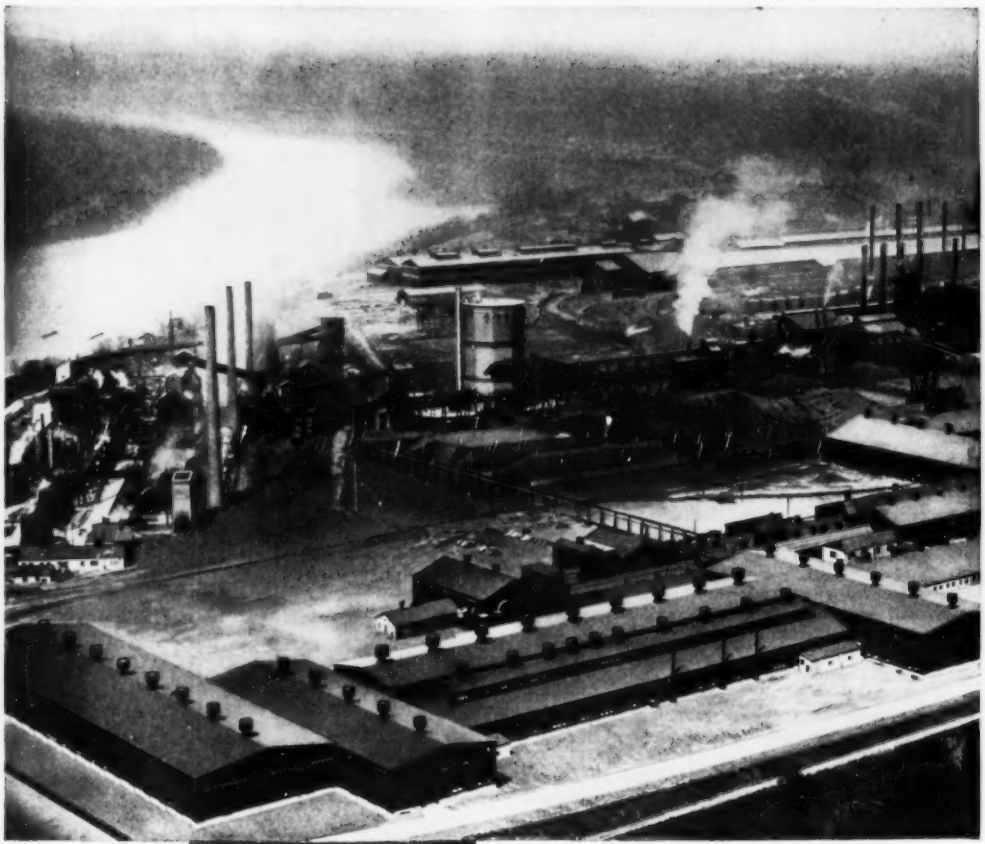
$18,000,000 set of tools for the



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hot and cold rolled **STAINLESS SHEET AND STRIP**

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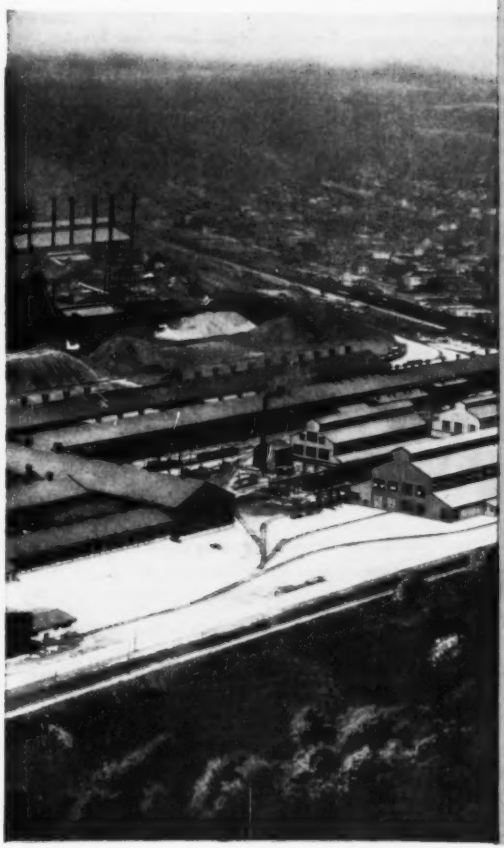

When a *master* mechanic gets new tools, expect master workmanship. And when CRUCIBLE, *master* producer of tool, alloy and specialty steels, designs an $18,000,000 mill specifically for hot and cold rolled stainless sheet and strip, you can rightly expect the best that modern facilities and generations of *specialty product* leadership can provide.

For here, at CRUCIBLE'S new Midland Mill, is an entirely new concept in stainless sheet and strip production . . . here, for the first time, stainless sheet and strip are made as *specialty products*, by specialty production methods, in a mill built from the ground up for this purpose. Here at Midland are no mills designed for carbon steel production, re-powered for the heavier duty of rolling stainless, but $18,000,000 worth of *brand new* equipment, designed and built for *modern* hot and cold rolling of stainless steel — in widths from ½" to 50" inclusive, and in all gauges, grades and finishes.

This is important news to every designer and fabricator of stainless steel products. For CRUCIBLE, pioneer in stainless steel since its inception, now offers *a completely integrated* line—sheet, strip, plates, bars, tubing, wire, forgings and castings.

In short, you can turn with every confidence to the *first* name in special purpose steels for *every* form of stainless. One of the largest and most highly specialized technical forces in the steel industry is at your service for specific application advice. And there are comprehensive data sheets available for all grades. Your inquiry will be welcomed.

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to involve an expenditure of more than a million dollars, which is considered to be a small price to pay for the effective control of the pulpwood killer.

Glass walls of the laboratory will enclose specially-designed culture rooms. Air filters will keep out bacteria. Part of the technical equipment will include an electro-microscope that can enlarge an object 200,000 times and a 100,000 rpm centrifuge. Huge refrigerators where virus can be stored will be constructed on the first of the two-story building. Expected to be ready by Christmas, the glass and brick structure will house 30 technicians at the start and later there will be 100 working on how to destroy the pulpwood infestation, either through virus disease or parasite insect attack.

Latin American Forestry Group

WASHINGTON — Establishment of a forestry working group for Latin American countries under the FAO of the UN has been arranged, following conferences on forestry and forest products held last year under sponsorship of that organization.

FAO has assigned two technicians from its staff as part of a working group to carry out projects suggested at the earlier conferences. Heading the technical operations will be Pierre Terver, French forester and wood technician, and Hans Scavenius, of Denmark, who studied lumbering operations in Sweden following graduation from the Royal Agricultural Institute at Copenhagen, where he was a specialist in forestry. Mr. Terver was, before coming under the FAO, acting chief of the Forestry Division, French Ministry of Colonies.

The general mission will be to provide Latin American countries with forest products badly needed for their own economies, it was stated.

Brown's "King Spruce" Film Shown

NEW YORK—Members of the American Pulp & Paper Mills Superintendents Ass'n., were taken, via motion pictures, into the woods of Northern New Hampshire and Maine when they met in Atlantic City for their annual convention, June 14-16. The film, which was shown by W. S. Bromley, Forest Engineer with the American Pulpwood Ass'n., tells the story of pulpwood production on Brown Co. timberlands, including the cutting and hauling of wood, "booming" across the lakes and the annual drive of the wood down the rivers and streams to the mills at Berlin.

Four SPCA Foresters on Job

ATLANTA—Services of four foresters are available through the Southern Pulpwood Conservation Ass'n. as liaison contacts between the pulpwood industry and the timber grower, producers of pulpwood, public forestry agencies, and the general public.

E. A. Freeman, 106 Calvin avenue, Ruston, La., serves Texas, Arkansas, and Louisiana. *Dawson M. Jennings*, Montgomery, Ala., serves Alabama, Mississippi, and parts of Louisiana and Florida. *Howard J. Doyle*, 1030 Carlisle avenue, Macon, Ga., works in Florida, Georgia, and most of South Carolina. *Francis J. Cook*, 627 North Sixth street, Albemarle, N. C., serves Virginia, North Carolina, and small parts of South Carolina, Georgia, and Tennessee. This program is administered by H. J. Malsberger, general manager of the Association.

Considering Labrador Timber Potential

OTTAWA—It is understood that the newly-elected Provincial Government of Newfoundland may look into the economic possibility of the province's industrial expansion, with a survey of Labrador timber areas being considered with a view of seeking raw material for a new paper mill.

It is believed that already photo-surveys of Labrador have shown some evidence of timber stands which might be able to supply a third paper mill in Newfoundland, with speculation indicating now that, if this plan should be carried out, such a mill might be erected on the south coast of Newfoundland to make use of Bay d'Espoir waterpower and timber from Labrador.

Recreationists Fire Makers

OTTAWA—Recreation is given as the principal cause of the greatest number of forest fires in 1948, with tourists, fishermen and hunters responsible for 48 percent of these fires, it is revealed in the annual report of the Lower Ottawa Forest Protective Ass'n., Ltd., of Hull, with indications that in former years lightning nearly always held first place and continued to cause 31 percent of fires in 1948.

Most serious hazard developed in the 12 days from May 28 to June 8 last year, G. A. Kingston, manager, said. At this time, 17 fires broke out which cost $107,000 to extinguish and which burned 29,000 acres of forest.

CONVERTERS

Bay State Container Co.

MARLBORO, Mass. — Robert C. Whelchel of Cochituate has purchased the former Raytheon Mfg. Co., building at Parmenter Square in this city and is equipping it for the production of corrugated paper containers. Mr. Whelchel was formerly associated with the Old Colony Container Co., in Sherborn, which was burned out on April 15. The new firm, which is to be known as the Bay State Container Co., is expected to be in production early in July.

Watson Joins Paramount

OMAHA—Max E. Watson has been appointed sales promotion manager of the Paramount Paper Products Co.

Dominion Corrugated Expansion

TORONTO—Dominion Corrugated Paper Co., will build an addition to its plant to replace an old section that is being demolished. The new unit is to be ready in September and will cost $100,000. It will be two stories, 18,000 square feet, steel, concrete and brick construction and will provide for increased production and storage of the company's wide range of corrugated products.

Hudson Expanding Palatka Facilities

PALATKA, Fla.—The Hudson Pulp & Paper Corp. has begun work on a two-story structure to cost $500,000. Anton Lund, of New York, vice-president of the corporation, said the building will serve for the time being as a warehouse. He added that room was being set aside for installation of automatic machinery later on. The new building will provide 100,000 square feet of space.

Catharin, Segal, Sales Club Execs.

BOSTON—Norman R. Catharin of the Stone & Forsyth Co., Cambridge, Mass., manufacturer of folding boxes, was elected president of the Sales Managers Club of the Boston Chamber of Commerce at a recent meeting. Donald Segal, of the Samuel Cupples Envelope Co., Inc., was elected a member of the executive committee.

Columbia Box Plant Leased

CHICAGO—The Container Corp. of America reports that its wholly-owned subsidiary, California Container Lorp., has leased the plant and equipment of the Columbia Paper Box Co., Portland, Ore. The property will continue to be operated as a folding carton plant.

Azon Firm Incorporates

BINGHAMTON, N. Y.—Azon Corp., 6 Gaines street, manufacturer of sensitized paper, has been incorporated with capital of $100,000. Incorporators are William Beese, Frederick O. Trump, and Henry Schmald.

Perras Bankruptcy Custodian

MONTREAL—The Lake Paper Box Co., has made an authorized assignment under the Bankruptcy Act and Claude Perras has been appointed custodian of the estate.

MERCHANTS

Steve Brown Succeeds Father

COLUMBUS, Ohio — Stephen C. (Steve) Brown has been elected president of the Sterling Paper Co., succeeding his father, the late Charles R. Brown. He was formerly secretary of the firm. Mr. Brown is also president of the Central States Paper Trade Ass'n.

Wholesalers' April Sales

WASHINGTON — Estimated sales of paper and paper products wholesalers in April, based largely on Bureau of Census data, were $110,000,000, compared with $117,000,000 in March, the Department of Commerce reports.

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AMERAN resin paste

...a new Plastisol for coating or spreading

AMERAN resin paste may be just what you're looking for—to improve paper products, or to develop new and better ones economically.

This new plastisol can be used to make coatings or flexible sheets, maintaining permanent lustre. No solvents are needed. There's no fire hazard—no recovery problem. And American Anode can compound it to give you the qualities you want—oil-resistance, acid-resistance, chip-proofness, full variety of fast colors, including white.

Here are other typical ways Ameran resin paste is used: for coating metal and wire, wire baskets, plating racks, pipe linings, wood and textiles.

It can also be used for the manufacture of unsupported films and to make dipped gloves and other film applications. It's ideal for casting or molding finished items, such as toys, gaskets and industrial boots. These may give you ideas for more uses.

American Anode engineers are ready to help you with your problems or products. For complete information, please write Dept. AF-4, American Anode Inc., 60 Cherry St., Akron, Ohio.

AMERICAN ANODE

CRUDE AND AMERICAN RUBBER LATICES, WATER CEMENTS AND SUSPENSIONS, AMERAN RESIN PASTES

tive wholesale firms, the Bureau of Census reported earlier that April dollar sales of the firms concerned showed $6,754,000, or within 94 percent of March figures, and 85 percent of sales in April a year earlier.

High Point Merchant Firm Incorporates

HIGH POINT, N. C. — The General Paper Co. here has been incorporated to engage in a wholesale paper business. Authorized capital stock is $100,000, with $400 stock subscribed by F. D. Kearns, R. W. Fuller, Jr., and J. M. White, all of High Point.

ASSOCIATIONS . . .

C. E. Foster, Jr., Heads Empire State Sec. TAPPI

BOLTON LANDING, N. Y.—Albert E. Bachmann of the Missisquoi Corp., Sheldon Springs, Vt., national president of TAPPI, was a leading speaker at the Spring meeting of the Empire State Section, TAPPI, June 2-4, at the Sagamore hotel. Mr. Bachmann asked increased cooperation of members in the association's accelerated program of research, cost reduction with special emphasis on paper manufacturing, and mechanical engineering.

The convention closed with a banquet June 4. C. E. Foster, Jr., of the Oswego Falls (N.Y.) Corp., Fulton, was elected chairman of the Empire State Section, TAPPI, at the closing session. He succee- Dr. James E. Foote of the E. B. Eddy Co., Hull, Que. Dr. Foote, who recently assumed his present position, was presented an honorary membersh- R. N. Prince of the American Cyanamid Co., Castleton - on - Hudson, was reelected secretary-treasurer.

H. M. Rice of E. I. DuPont deNemours, Watertown, was elected delegate-at-large. Named to the executive committte serving with him were Elmer A. Godfrey of the Dexter Sulphite Pulp & Paper Co., Dexter; J. B. Calkin of the Union Bag & Paper Corp., New York; Raymond H. Wiles of the International Paper Co., Glens Falls; Joseph S. Reichert of E. I. DuPont deNemours, Niagara Falls; all reelected.

F. G. Sommerville, chief chemist of the Armstrong Cork. Co., Fulton, was chosen to the executive committee to succeed Harold R. Wheeler, Jr., of the Oswego Falls Corp., Fulton.

"Getting the Dollar Value from Your Instruments" was the subject of an address by W. S. Yunger, sales-manager for pulp and paper industries of the Foxboro Co. at the final meeting.

"Instrumental Application" was the topic of Hugh H. Lavery, assistant technical superintendent of the Corinth mill of the International Paper Co. He described instrumentation in the International Paper Co. at Palmer Falls.

The work of the Council for Stream Improvement was discussed by Anthony J. Palladino, sanitary engineer of the council.

An outstanding social and recreational program was among the features of the convention. A feature of the closing banquet was the awarding of prizes for golf, trap-shooting and bridge. A special award was made to David Cordell, eight-year-old son of Mr. and Mrs. C. E. Cordell of Philadelphia, who caught 29 perch one afternoon while fishing in Lake George off the Sagamore hotel dock.

Prizes for bridge, awarded by Mrs. Allen Copping of Corinth, chairman, went to Mrs. Cordell, first; Mrs. James S. Bullard of Bennington, Vt., second; Mrs. Copping, third; Mrs. Henry W. Fales, Glens Falls, fourth; Mrs. Gus Holm, New York, fifth; Mrs. Ermund G. Noonon, Glens Falls, sixth; and Mrs. W. A. Garrison of Philadelphia, seventh.

Prizes for women's golf, distributed by Mrs. Robert Drummond of Glens Falls, chairman, went to Mrs. Copping, for low gross; Mrs. V. A. Stauffenegger of New York, low net; and Mrs. E. F. McIntyre of Fayetteville, N. Y., second low net.

Trap shooting awards, presented by G. E. Osterheldt of Cranford, N.J., went to J. Wesley Youngchild of North Tonawanda, formerly of Glens Falls, first; and Mark Waterbury, of Oriskany, second.

Mr. Drummond presented men's golf

Empire State Section TAPPI executives at Bolton Landing, N. Y. . . Left to right—Fred G. Sommerville, of Fulton, N. Y., newly elected member of the executive committee of the Empire State Section of TAPPI; A. E. Bachmann of Sheldon Springs, Vt., national TAPPI president; C. E. Foster, Jr., of Fulton, newly elected state chairman; Foster P. Doanex, Jr., Glens Falls, convention chairman; R. N. Prince of Castleton-on-Hudson, secretary-treasurer; Henry J. Perry, New York, consulting engineer; Dr. James E. Foote of Hull, P. Q., Can., retiring chairman, and Homer M. Rice, Watertown, delegate-at-large

Organizing Committee for the convention of the Empire State Section of TAPPI. . . Left to right—R. J. Trimbey, Glens Falls; T. N. Rider, Lake George; Foster Doane, Jr., Glens Falls; Mrs. Doane; Mrs. Allen Copping, Corinth; Mrs. Robert Drummond, Glens Falls; Joseph MacLaren, Glens Falls, and Mr. Drummond.

prizes to Fred Parkinson of New Hartford, low gross for the affiliates; R. C. March, Glens Falls, low net for the affiliates; A. M. Guigers, Glens Falls, low net for the papermakers; Amos Good, Jr., Hudson Falls, second low net for the affiliates, and George Carroll, Newton Falls, for the papermakers. Mr. Drummond received a prize for the most five's per hole.

Special prizes were awarded to Carl F. Richter of Watertown and Foster Doane, Glens Falls, Mrs. Warren Beman of New York received the Izaak Walton prize of ten one-dollar bills on a string for catching a four-pound lake trout.

Nat. Paperboard Ass'n. Meeting

NEW YORK—The Spring Meeting of the National Paperboard Ass'n., will be held at the Greenbrier hotel, White Sulphur Springs, West Va., June 27-28. A meeting of the board of directors is scheduled for June 27. George E. Dyke, president of the Robert Gair Co., Inc., New York City, is president of the Association, and W. H. Beckwith, is vice-president and general manager of the Morris Paper Mills, Morris, Ill., is vice-president.

Zittel, Meyer Newest SAPI Members

NEW YORK—Charles H. Zittel of the Holyoke Card & Paper Co., Springfield, Mass., and Wm. B. Meyer of the Kimberly-Clark Corp., New York City, have been admitted to membership in the Eastern division of the Salesmen's Ass'n. of the Paper Industry.

Boston Paper Trade Ass'n Outing

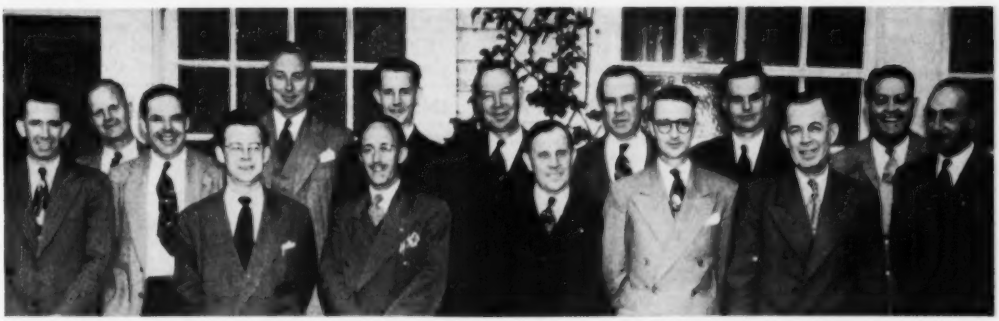
BOSTON—Perfect weather and an attendance of 147 members and guests at the meeting and outing of the Boston Paper Trade Ass'n., at the Charles River Country Club June 6 made the affair an outstanding one in the history of the organization. Teeing off for the golf tournament started at 8:30 o'clock continuing until 2, the other sports beginning at 2. A buffet luncheon was served in the locker building from 12 to 2:30. Dinner began with the singing of the Star Spangled Banner.

In a brief business meeting, called

SUPERINTENDENTS UNVEIL RITTENHOUSE PLAQUE

Representatives of the American Pulp & Paper Mill Superintendents Ass'n., Inc., together with descendents of William Rittenhouse and several commissioners of Fairmount Park, assembled on June 13 at the site of the first paper mill in North America to dedicate a Bronze Plaque to the memory of its founder. . . The site of this first mill has been definitely established at a point in Fairmount Park Philadelphia, on the right bank of a stream known as Paper Mill Run. The spot has now been appropriately marked by the Plaque. . . During the ceremony talks were given by Harry E. Weston, associate secretary of the American Pulp & Paper Mill Superintendents Ass'n., Inc.; William Brydges, and Fred Boyce, past presidents; and William Neisser III, a descendent of William Rittenhouse. Joseph Carson, president of the Commissioners of Fairmount Park, also spoke. . . left to right in picture are: Mr. Boyce, Ollie Messner, Ray Barton, Mr. Brydges, Mr. Weston and Oscar Stamets.

BRITISH COLUMBIA PULP & PAPER INDUSTRY SAFETY ASSOCIATION



The British Columbia Pulp & Paper Industry Safety Ass'n., comprising safety directors of the pulp and paper industry of British Columbia, met at Powell River, B. C. for their 1949 Spring-Summer Sessions, May 25-27 as guests of the Powell River Co., Ltd. . . Business sessions covered practically all phases of accident prevention and safety work with particular emphasis on the importance of practical human relations. . . . Following the two days of business sessions, the delegates were guests at the fishing lodge of the Powell River Co., Ltd., at the head of 22-mile-long Powell Lake. . . Delegates were welcomed to Powell River by R. M. Cooper, resident manager. They included the following . . . Front Row left to right: J. E. Cowan of the Sorg Pulp Co. Ltd., Port Mellon; Leander Manley, secretary-manager, Canadian Pulp & Paper Ass'n., Western Branch; J. H. McLean, inspector, Workmen's Compensation Board, Vancouver; L. J. A. Rees, Pacific Mills, Ltd., Ocean Falls; L. C. Kelley, mills superintendent, British Columbia Pulp & Paper Co. Ltd., Vancouver; Ed Tucker, British Columbia Pulp & Paper Co. Ltd., Port Alice. . . Back Row left to right: S. J. Slade, chairman of the sessions, and E. R. Needham, both of the Powell River Co., Ltd., Powell River; Gordon Dubberley, British Columbia Pulp & Paper Co. Ltd., Woodfibre; Cyril Hague, Pacific Mills, Ltd., Vancouver; V. Mahoney, Westminster Paper Co., Ltd., New Westminster; P. L. Miles of Bloedel, Stewart & Welch, Ltd., Port Alberni; E. V. Ablett, commissioner, Workmen's Compensation Board, Vancouver; E. Duck, Canadian Boxes, Ltd., Vancouver; and A. E. Ramer of the Sidney Roofing & Paper Co., Ltd., Victoria.

to order by President William N. Stetson, Jr., after the dinner, John W. Vivian, through whom the organization was enabled to have the outing at the club, and Charles T. Casey, the former treasurer, were presented.

Four new members were elected: Paul A. Mahony, International Paper Co.; Francis S. Leblanc, Monadnock Paper Mills, Inc.; and Clarence Gay and Clive T. Veazie, both of the Andrews Paper Co.

President Stetson complimented the committees and the secretary-treasurer, Norman E. Scott, on their work in making preparations for the outing.

Beautiful and useful prizes were awarded to the winners in all the sports events.

Golf: In charge of the golf was Philip Richardson. W. Edwin Porter, Jr., Cook-Vivian Co., won the low net and Championship Trophy, with 91—18—73. The other golf winners were as follows: Class "A"—low gross, John R. Whitney, 87, Carter, Rice & Co. Corp., Springfield, Mass.; second net, Everett Ketcham, 90—15—75, Southern Kraft Division, International Paper Co.; third net, Clarence G. Gay, 89—14—74, Andrews Paper Co. Class "B"—Low gross, James W. Sweet, 94, American Writing Paper Co.; low net, A. J. Sottung, 96—23—73, Byron Weston Co.; second net, George Morrison, 97—23—74, Mohawk Paper Mills. Class "C"—low gross (9 holes), John P. Ingalls, 52, Ingalls-Cronin Co.; low net (9 holes), Lewis C. Bills, 54—16—38, Robbins Paper Co.; second net, Grant Harrington, 53—15—38, Hollingsworth & Vose Co. Kickers Handicap—Carl J. Knutson, H. J. Dowd Co. Guest Handicap—W. W. Young, 99—30—69, American Paper Goods Co. The guest low gross winner was H. W. Kephart, 86, vice-president of the United Board & Carton Corp.

Horseshoes: Hubert Lockhard in charge—first, Royal P. Teele; second, John A. Andrew, Jr., associated with John A. Andrew, manufacturers' representative. Guests—First, H. W. MacDougall, Hollingsworth & Vose Co.; second, Ed Brown, Chas. A. Esty Division of Carter, Rice & Co., Corp., Worcester, Mass.

Bowling: Merton C. Flemings in charge—first, John Calligan, Eastern Corporation, and H. W. MacDougall, Hollingsworth & Vose Co.; second, Herbert Smith, Tileston & Hollingsworth, and Tom Curtis, Hollingsworth & Whitney Co.

Putting: Edgar P. Hay in charge—first, Malcolm Dunn, American Writing Paper Co.; second, Arthur Everts, Carter, Rice & Co., Corp.

Among those present was Thomas Compton Walsh, formerly sales manager for Hollingsworth & Vose Co.

Officers of the association are William N. Stetson, Jr., president; F. Henry Savage, first vice-president; Floyd H. Blackman, second vice-president, and Norman E. Scott, secretary-treasurer.

WESTON, MEDALIST

"For excellence in advancement of industrial relations", Harry E. Weston on June 4 was awarded the George Arents Pioneer Medal by Syracuse University . . . Mr. Weston was picked for his constant advocacy of "greater use of college trained men, special training methods for pulp and paper mill workers, and improved safety practices." . . . In 1948 Mr. Weston left Paper Industry and Paper World for executive responsibilities and still more direct educational work in the industry through the American Pulp & Paper Mill Superintendents Ass'n., Inc., Chicago.

ASME 'Frisco Meet June 27-July 1

NEW YORK—Glenn T. Seaborg, 37-year-old scientist who is co-discoverer of fissionable isotopes plutonium-239 and unarium-233 as well as plutonium (atomic number 94), americium (atomic number 95) and curium (atomic number 96) is scheduled to give an authoritative report on the prospects of nuclear energy for industrial power when he speaks at a five-man panel session during the Semi-Annual Meeting of the American Society of Mechanical Engineers at the Extension Building of the University of California in San Francisco, June 27-July 1. Mr. Seaborg is a member of the General Advisory Committee to the U.S. Atomic Energy Commission, and professor of Chemistry at the University.

The panel, on the topic, "The Engineer, His Opportunity for Service to Help Create a Better and More Livable World—Materially and Spiritually," will be held June 29.

Also on the program for the ASME meeting is a paper on the instrumentation for an atomic power plant, by two General Electric engineers engaged in research at the Knolls Atomic Power Laboratory, at Schenectady, N.Y., operated by G.E. for the U.S. Atomic Energy Commission. They are, David Cochran, in charge of the engineering division of the laboratory, and C. A. Hansen, Jr., instrument project engineer.

The increasing concern of technical men with the sociological as well as the material problems of society is reflected in the theme of the meeting, "Engineering Frontiers," and will serve as the keynote for the banquet speakers, James M. Todd, president of the society, and Robert G. Sproul, president of U.C.

"Mechanical Engineering Frontiersmen" will be Mr. Todd's topic, while President Sproul will speak on "The Engineer and the World Outlook in the Atomic Age." The banquet, June 29, will serve as a memorial to Worcester R. Warner and Ambrose Swasey, late designers of the Lick Tele-

WAXED PAPER INSTITUTE ATLANTIC CITY BOOTH

Hundreds of products protected by waxed paper were shown in this display of protective packaging materials at the AMA Packaging Exposition in Atlantic City, May 10-13. . . The exhibit was sponsored by the Waxed Paper Institute, Inc., Chicago. Included in the "supermarket setting" were waxed paper bread wraps and waxed paper wraps used on such items as cigarette cartons, cereals, potato chips, frozen foods, meats, candy, rolls and buns, crackers, soap.

scope and former presidents of ASME.

Turbo-jet engines, aircraft gas turbines, power, fuels, industrial instruments and regulators, production engineering, machine design and management are among the subjects for technical sessions. Rockets for research in the ionosphere will be the topic of K. F. Mundt, manager of engineering and manufacture at the Aerojet Engineering Corp., Azusa, Calif., at a session co-sponsored by the American Rocket Society, an affiliate of the ASME. Electrical pickoffs for pilotless aircraft instruments will be discussed by Jack Andresen, project engineer of the Kollsman Instrument Division of the Square-D Co., Elmhurst, N.Y.

Wilburn C. Schroeder, chief of the Office of Synthetic Liquid Fuels, Bureau of Mines, Washington, D.C., will speak on synthetic liquid fuels from coal and oil shale.

Recent developments in burning wet wood will be the topic of Otto de Lorenzi, director of education, Combustion Engineering-Superheater, Inc., New York, at a fuels session.

Two papers to be given at a power session will deal with steam power in California. They are: "Post-War Planning for Steam Capacity in Northern California," by C. C. Whelchel, chief of the division of steam engineering, and W. R. Johnson, assistant to the chief of the division of hydroelectric and transmission engineering, Pacific Gas & Electric Co., San Francisco; and Steam Power Expansion in Southern California," by W. L. Chadwick, manager, engineering department, Southern California Edison Co., Los Angeles.

SUPPLIERS . . . . .

Dedicate Stowe-Woodward Plant

UPPER NEWTON FALLS, Mass.—Approximately 50 guests, company executives, sales engineers and other employes of Stowe-Woodward, Inc., assembled at the Upper Newton Falls plant on June 9, to participate in the formal opening of a new streamlined unit. Guests included Mayor Theodore R. Lockwood and other officials of the City of Newton. The new plant was dedicated to Sherman Ward, president of the company for 26 years before his death in 1942. Participating in the dedication ceremony were:

Placing the core of the first roll to be processed in the new Stowe-Woodward plant at Upper Newton Falls, Mass. When completed, this press roll will be placed in operation on one of the paper machines at the Covington, Va., mill of the West Virginia Pulp & Paper Co.

Executives of Stowe-Woodward, Inc.

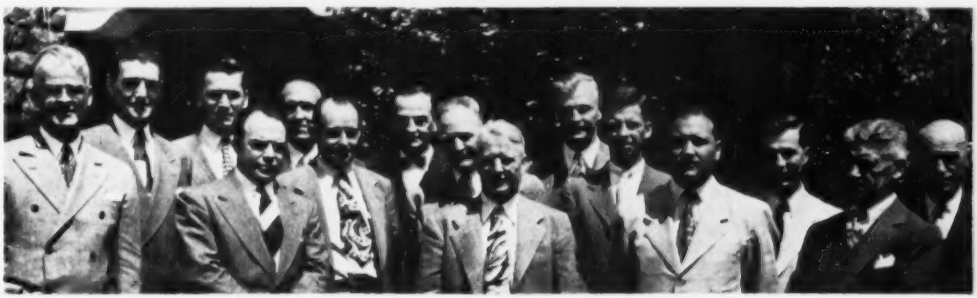
W. E. Greene, chairman of the board; E. W. Peterson, president; H. B. Shepard, vice-president; F. P. Thornton, vice-president and director; O. P. Arnold, vice-president and director; E. L. Tewksbury, treasurer and director; C. W. Walters, assistant to president; P. B. Holden, plant engineer; R. M. Leighton, chief chemist; I. Mangion, assistant chief chemist; D. M. Holmberg, assistant chemist; T. F. Kenney, superintendent; E. M. Anderson, traffic manager; H. L. Stevenson, foreman; J. J. Stevenson, foreman; A. Walker, foreman of the new plant; F. L. Phelps, roll department manager; T. T. Ericksberg, assistant roll department, manager; J. G. Lord, controller.

Sales Engineers of Stowe-Woodward, Inc.

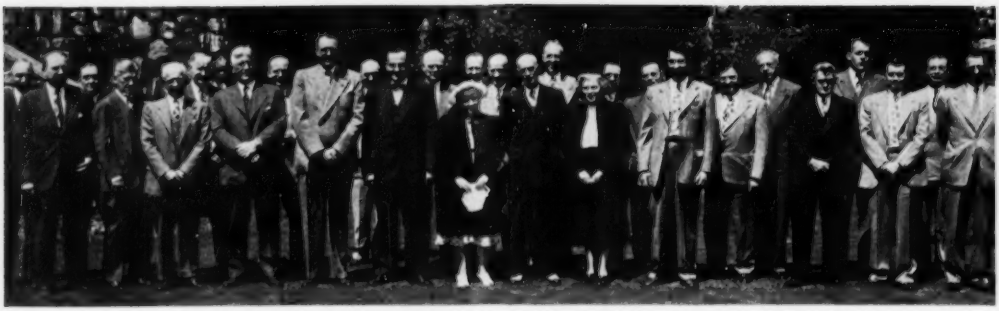
E. S. Greene; R. P. Arnold; F. P. Thornton, Jr.; J. H. Glander; C. M. Schermerhorn; R. W. Holden; W. A. Honey; B. West; J. Retallick; A. F. Fisk; H. H. Jensenius; C. Morganstern.

Guests

Charles J. Taylor, retired superintendent of Stowe-Woodward, Inc.; Wiley Smith, Beloit Iron Works; Mayor Lockwood; Arthur Campbell, public buildings commissioner; Malcolm Warren, assistant public buildings commissioner and Sidney H. Baylor,



Rear row, left to right: C. Morganstern, E. S. Greene, C. M. Shermerhorn, O. P. Arnold, J. Retallick and E. L. Tewksbury. . . Front row, left to right: R. W. Holden, A. F. Fisk, J. H. Glander, B. West, F. P. Thornton, Jr., F. P. Thornton, Sr. . . Right, foreground: H. H. Jensenius and W. A. Honey.



Back row, left to right: Malcolm Warren, Arthur Campbell, Ronald G. Macdonald, Vincent Waters, Donald Jenkins, M. F. Bosworth, Frederick A. Hawkins, Wiley Smith, Henry E. Hawkins, Mr. Doran, Charles J. Taylor, Mr. Newbury, Wm. Hoftyzer and Mr. Roman. . . Front row, left to right: Sidney H. Baylor, F. P. Thornton, Sr., J. J. O'Brien, Major Theodore R. Lockwood, E. W. Peterson, O. P. Arnold, Mr. Cronin, E. L. Tewksbury, Mr. Clarke, P. B. Holden, Mr. Fontanay, Mr. Kervian, E. P. McGinn and Frank Keller.

Rear row, left to right: P. B. Holden, E. W. Peterson, T. F. Kenney, D. M. Holmberg, F. L. Phelps and C. W. Walters. . . Front row: J. Mangion, A. Walker, J. G. Lord, E. M. Anderson, T. T. Ericksberg, H. B. Shepard, H. L. Stevenson and R. M. Leighton.

alderman—City of Newton; Contractors Donald Jenkins, Frederick A. Hawkins, and Henry E. Hawkins of H. H. Hawkins & Sons; Ronald G. Macdonald, national secretary-treasurer of TAPPI; Frank L. Keller of Sutherland-Abbott, advertising; and the following press representatives: Wm. Hoftyzer, J. J. O'Brien, M. F. Bosworth, Vincent Waters and E. P. McGinn.

The program started at 11:00 A.M., with a tour of the old and new plants. This was followed by the dedication ceremony on the loading platform of the new plant by President Peterson and Mayor Lockwood, after which the new plant was formally started into operation with the placing of a new press roll core in one of the lathes. This roll was destined for the mill of the West Virginia Pulp & Paper Co. at Covington, Va.

At the conclusion of the ceremony in the new plant the group was taken to the Brae Burn Country Club where refreshments and luncheon were served. At luncheon Mr. Peterson touched on some of early history of Stowe-Woodward, Inc., and Mr. Lockwood told of the excellent relations that have always existed between the firm and the City of Newton. Parker Holden, chief engineer, recounted various of his experiences in supervising the construction of the new plant. Some of the final work, he revealed, was not completed until the day before the dedication.

Stowe-Woodward, Inc., and the companies from which it grew are almost 60 years old. The company has purposely been kept comparatively small, a spokesman emphasized, because it is felt that products made to such exacting specifications can best be made in a small company. This policy however, has brought steady growth and the company now has more employes than at any other time in its history.

Over the years there have been many changes in the kind of products made by the firm. Some of the first products were buggy tires, rubber washers for beer bottles, rubberized fabrics for open automobile tops, etc. All of these materials are now obsolete but new products have been continually added to replace those for which there is no longer a market.

The present list of products includes rubber covered rolls for paper and textile mills and tanneries, Stonite press rolls, Tannite couch rolls; deckle straps and Pres-sure marking banks for paper machines and Spherite valve balls for plunger pumps. In addition, rubber rolls, molded rubber products, bowling balls and miscellaneous rubber goods are made for other industries.

IPI, New York, has issued a new, handy Color Guide for News Inks showing 30 colors in a practical format. Color specimens in the guide were chosen as a working selection for most general newspaper color printing. They include both standard and alternate process and comic colors. Also shown are 8 halftone web colors and 16 run of paper colors. The latter are placed to cover the hues of a color circle and permit quick choice of "in-between" colors.

Frederick H. Mason Co., 1916 Ford building, Detroit 26, sales and engineering representative of Cochrane Corp., Philadelphia, in Michigan and the Toledo industrial area for deaerating feedwater heaters, water softeners, and industrial water conditioning specialties has also been appointed representative for the Cochrane C-B Condensate Drainage Control System. Philip J. Berry, Robert M. Weaver, and S. Sutterfield are the individuals covering this territory.

John L. Collyer, president of The B. F. Goodrich Co., Akron, Ohio, received the honorary Doctor of Laws degree from Ohio State University on June 10.

Carl E. Staky is currently marking 25 years of service with the D. J. Murray Mfg. Co., Wausau, Wis., as general manager since January 1, 1930, and as executive vice-president since 1942.

Meredith, Simmons & Co., Ltd., has changed its name to National Adhesives (Canada), Ltd. It has been affi-

liated with National Starch Products, Inc., New York, and its predecessor company since incorporation in 1920. The firm operates manufacturing plants in Toronto and Montreal and has sales offices there and in Winnipeg and Vancouver.

Westinghouse Electric Corp., Pittsburgh, has assigned Vice President L. E. Osborne to staff supervision over all the company's manufacturing activities, including all matters of production and industrial relations. Simultaneously he retains operating responsibility for five major manufacturing divisions. James H. Jewell, recently-elected vice-president, takes over staff supervision of all sales and marketing on a company-wide basis. John K. Hodnette, vice-president and head of the transformer division at Sharon, Pa., becomes general manager of industrial products with headquarters at Pittsburgh. Reporting to him will be all operating divisions making industrial goods as well as the district sales organizations which sell these goods. His successor at Sharon has not yet been announced. John M. McKibbin, also a recently-elected vice-president and former head of advertising and sales promotion, now is appointed general manager of consumer products with responsibility for operation and distribution of the appliance division and the home radio division. Mr. McKibben will make his headquarters at Pittsburgh. Both Mr. Hodnette and Mr. McKibbin report directly to President Gwilym A. Davies.

A. M. Shaw and Roy Carter of the Worthington Pump & Machinery Corp., Harrison, N. J., were recipients of awards presented by the Hydraulic Institute at Absecon, N. J., June 6, for their papers entered in the Institute's 6th Annual Engineering Essay Contest. Mr. Shaw's award was for his paper in the Technical group on "Phenomena of Viscous Flow" and was judged second of those in that group. Mr. Carter's paper on "Starting Torque Characteristics of Centrifugal Pumps" received first prize in the Practical Papers group.

Allis-Chalmers, Milwaukee, has advanced Robert S. Fleshiem from manager of the electrical department to assistant to W. C. Johnson, executive vice-president of the general machinery division, succeeding J. D. Greensward, recently named general manager of the company's Norwood (Ohio) Works. Roy M. Casper, who has been manager of the motor and generator section, succeeds Mr. Flesheim as manager of the electrical department.

Edwin R. Bartlett, president of the Hooker Electrochemical Co., Niagara Falls, N. Y., has been elected a board member of the National Industrial Conference Board. The Conference Board, founded in 1916, is an independent, nonprofit organization which gathers, tests, distributes, and explains facts essential to the establishment of management, labor, governmental and economic policies that accelerate industrial progress.

LEEDS AND NORTHRUP'S GOLDEN ANNIVERSARY

In recognition of half a century of co-operation, Morris E. Leeds, founder and board chairman of Leeds & Northrup, Philadelphia, was presented with a testimonial of esteem from his associates at the firm's 50th Anniversary Party June 4. . . Left to right: J. H. Swope, president of the firm's Employes' Union; Mr. Leeds; Robert Craigh, president of the firm's Co-operative Ass'n.; C. S. Redding, L. & N. president; and Mrs. Redding.

Clinch & Co., Carthage, N.Y., has been incorporated with capitalization of $150,000. Incorporators are Wm. G. Lewis, Jr., and his wife, Adeline B. Lewis of Watertown, and C. Walter Clinch and his wife, Elda Clinch of Carthage. The firm which is chartered to manufacture, sell and distribute machinery, is occupying the former Ryther & Pringle plant. Capitalization consists of 1,500 shares of $100 par value common stock.

John F. Ducey, Jr., and Sam R. Watkins have been appointed district sales managers of the Brake Shoe & Castings Division of the American Brake Shoe Co. Mr. Ducey is located at his firm's New York office; Mr. Watkins in the Cleveland, Ohio, sales office.

SPROUT-WALDRON MEN

Sprout-Waldron & Co., Muncy, Pa., manufacturer of the Sprout-Waldron refiner, has named Thaxter W. Small (left) regional paper industry engineer serving the South, with offices at 607 North Patterson street, Valdosta, Ga., and C. W. Converse (right) regional sales engineer serving the Mid-West, with offices at 124 North Durkee street, Appleton, Wis.

Buffalo Forge Co., Buffalo, N. Y., has elected Charles C. Cheyney and Arthur M. Kiely to the directorate, increasing the number of directors from five to seven. Mr. Cheyney is sales manager, and Mr. Kiely, controller.

B. F. Goodrich Chemical Co. has appointed E. B. Osborne sales representative for Geon plastic materials in Philadelphia and adjacent area in addition to sections of Delaware and Maryland.

Chain Belt Co., Milwaukee, has named Charles Moeller district sales engineer to the Kansas City office. He has been with the factory organization for almost two years.

LABOR

Suppress That Exuberance, If Any!

WASHINGTON—The National Labor Relations Board ruled on June 10 that an employer cannot give his workers a day off with pay to celebrate defeat of a CIO union in a bargaining election. A three-man panel held unanimously that a Cedartown, Ga., yarn mill had violated the Taft-Hartley Law by granting such a holiday, because it "discouraged membership" in the Textile Workers Union of America (CIO). "This gratuity", the board pontificated, "is likely to have been construed by the employes not only as an expression of approval by the company of the union's defeat, but also as a promise of future reward for continuing to reject union organization". *Ed. note*—Paraphrasing Shakespeare, "If you have cheers, prepare to shed them now."

Holyoke Wage Contract Signed

HOLYOKE, Mass.—Month-long negotiations have resulted in a new contract between six Holyoke paper mills

employing approximately 2,000 workers and officials of two locals in the International Brotherhood of Papermakers. Management had proposed a five-cent hourly pay cut while the unions, Eagle Lodge No. 1 and Local 226, had requested a 10-cent hourly wage increase. The new contract retains the same base rates in effect for the past year: 99½ cents hourly for male laborers, 90½ cents hourly for female workers, and $1.45 hourly for machinists. Some changes in working conditions were also incorporated.

Harold T. Martin of South Hadley, advisor to the mill owners, represented the American Writing Paper Corp., Parsons Paper Co., Crocker-McElwain Co., Chemical Paper Mfg. Co., Valley Paper Co., and Franklin Paper Co. Henry F. Wilson, president, represented Eagle Lodge, and John B. Dupre, president, Local 226.

MISCELLANY . . . .

Modernizing Rag Classifications

NEW YORK—Two committees of the Cotton Rag Council of the National Ass'n., of Waste Material Dealers, Inc., have started work to modify and bring up to date the NAWMD classifications and specifications for both old and new rags.

According to Anthony Nicoletti, of D. Benedetto, Inc., New York City, president of the Council who named the committees, it is planned to have each unit coordinate its work with interested consumer groups before the new classifications are presented to the membership for approval.

The last annual meeting of the Council, held in conjunction with the Annual Convention last March in Chicago, voted in favor of the revision of present cotton rag classifications and the committees are carrying out that mandate, Mr. Nicoletti pointed out.

The first group to confer was the Old Rag Committee, the chairman of which is James Derrico, of the Derrico Co., Inc., New York City. Others who attended the meeting included: Arthur L. Feierman, of Arthur L. Feierman, Philadelphia; Harris Goldman of the Harris Goldman Co., Inc., New York City; Perry Koplik, of Castle & Overton, Inc., New York City; J. F. Maggese of the Rag Processing Co., Long Island City, N.Y.; James T. Flannery, of James T. Flannery Co., Jersey City, N.J.; Clinton M. White, NAWMD managing director, and Mr. Nicoletti.

The New Cuttings Committee, headed by Joseph Schapiro, of S. Schapiro & Sons, Inc., Baltimore, met June 8, with the following in attendance: Louis Marcovitz of Loumar Textile By-Products, Inc., New York City; Harry Quicksilver of Lewin-Mathes Co., St. Louis; S. I. Lippman, of P. Garvan, Inc., Hartford, Conn.; Harold Eisenberg, of J. Eisenberg & Son, Inc., Brooklyn; A. Waldman of A. Waldman & Co., Inc., Brooklyn; Herbert Levy of the Rag Processing Co., Long Island City, N.Y.; Bert Maxman of S. Maxman, Philadelphia; Ezra Frankel of Frankel Bros. & Co., Rochester, N.Y.; Harry R. Woodward of the Train-Smith Co., Chelsea, Mass.; and Messrs. Flannery, Nicoletti and White.

U. S. Customs Rulings

NEW YORK—That Germany will soon be exporting various paper products to the United States, chiefly in the specialty field is evidenced, according to Warren B. Bullock manager of the Import Committee of the American Paper Industry, by an importation of paper napkins decoratively printed in the United States zone of Germany. The napkins were claimed by the importer to be dutiable as paper cut into shape but were held by Customs officials to be dutiable at the higher rate for manufactures of paper. The same action has been taken on imports of napkins from Norway and the United Kingdom.

Other cases involving imported papers have been acted upon by Customs officials. Toilet paper in rolls was held to have been undervalued. Cream manila paper imported into Tennessee from Canada was claimed to be dutiable as printing paper, but held for duty at the higher rate for wrapping paper.

The United States Customs Court has held that a dozen shipments of aluminum foil paper were dutiable at the actual sale price, even though that price was much lower than the usual quotations in the country of origin. The court based its decision on the ground that the foreign market was under cartel control as to prices and distribution, the cartel by this procedure being able to escape payment of duty on the real foreign price. The shipments were made by Germany prior to World War II, but have been before the Customs Court since that time.

Canada Implementing British Trade

OTTAWA — The Canadian Government's Finance Department has announced the removal of import barriers from a number of articles, including paper products, aimed mainly to help boost British exports to the Canadian market, with open general permits on the articles being granted to all non-dollar countries and the new import decontrols becoming effective next July 1.

Nevertheless, this is not expected to increase expenditures of so-called "hard currency" or dollars in the United States dollar area since importers from this area still will have to stick to the amount of their quotas, though the change means that importers, working under quota, will have a wider variety of articles from which to choose.

Non-dollar areas which will be allowed to export to Canada under open general permit will include all other countries except the following: Cuba, Dominican Republic, Guatemala, Haiti, Panama, El Salvador, Switzerland, Russia, Venezuela and the United States. Consequently, there will be no added expenditure of U.S. dollars since Canadian importers will continue to import the articles from the dollar areas under their present quotas.

It is understood here that the latest move has followed discussions recently held between officials of the British and Canadian Governments.

Antipollution Outlay Amortization

WASHINGTON—Industries installing anti-stream pollution treatment works of approved pattern would be allowed to amortize the cost of such facilities over a five-year period, under a bill introduced jointly in the House by Representative Byrnes, (Wis.) and Representative Chatham, (N.C.) the week ending June 11.

Installations must comply with State pollution laws, and be approved by the Surgeon General as in aid of the Federal anti-pollution program.

"The basic reason for such accelerated amortization is the costliness and non-productive nature of most pollution treatment works," Representative Byrnes explained, in support of the measure.

"The bill recognizes that most industries, anxious as they are to abate their own pollution, cannot afford under present depreciation laws, construction of expensive facilities, and still maintain their competitive position.

"The bill permits these industries to write off the cost of those works at a faster rate than normal depreciation allowances will permit. Such special treatment is more than justified in view of Congress' declared war on pollution."

Mueller to Kalamazoo for Hansson

NEW YORK—Charles E. Mueller, assistant manager of the pulp department of Elof Hansson, Inc., is now representing the organization in the mid-West. He will make his headquarters in Kalamazoo, Mich., and for the present at 1216 Hol-Hi Drive in that city. Mr. Mueller has been affiliated with Elof Hannson, Inc., for the past year. He was formerly associated with the Bulkley, Dunton Pulp Co., New York.

Elof Hansson, Inc., was previously represented in Illinois, Indiana, and Michigan by Alexander W. Macvie, now retired. In addition to these states Mr. Mueller's territory will include Ohio, Wisconsin, and Minnesota as well.

Newfoundland Paper Imports

OTTAWA—Imports into Newfoundland, Canada's newest and 10th province, during the 1947-48 fiscal year, show imports of paper and manufactures totalled $2,651,000, including $1,579,000 from Canada; $987,000 from the U.S., and $85,000 from all other sources.

Studying Pollution Control

OREGON CITY, Ore. — West Coast pulp mills have initiated an intensified and comprehensive program to develop methods for reducing the pollutional effects of sulfite pulp mill discharges, G. W. Gleeson, Oregon State College dean of engineering, reports.

The program, sponsored by the National Council of Stream Improvement, will be a three-phase effort including studies of abatement methods, process changes and fishery problems. The sponsoring council represents 90 percent of the pulp and paper production in the U. S., Dean Gleeson states.

O.S.C. engineers are working on four studies relating to reducing pollutional characteristics of sulfite liquor wastes.

Included in the studies will be investigation of the use of catalysts to bring about chemical reactions that may destroy organic matter through oxidation, destruction of the wood sugars through a heat process, absorption of objectionable substances from the liquor from newly-developed types of granular clays and research on fermentation of sugars present in sulfite liquors to produce methane, a combustible gas.

Previous fermentation studies, according to Dean Gleeson, are incomplete, but new techniques developed by the national council will be investigated to determine if they can be used successfully with waste sulfite liquor.

Numerous recovery processes that require major changes of the usual sulfite mill process are being studied in this and other countries, continued the Dean, including the magnesia base system at the Weyerhaeuser Timber Co. plant.

The third study dealing with possible harmful effects of pulp mill discharges on water life has been under the leadership of R. E. Dimick, head of the OSC fish and game management department. The purpose will be to determine the effect of kraft mill waste discharges on species of fish native to the west coast.

Drying Oil Uses Increasing

WASHINGTON—Use of tall oil, fatty acids, and other secondary fatty materials in drying-oil products continued to increase in 1948, though at a slower rate than formerly, the Bureau of Agricultural Economics reports.

Utilization of these materials in 1948 was estimated at over 80,000,000 pounds, compared with 75,000,000 in 1947, and 54,000,000 pounds in 1946.

Tall oil production totaled 249,000,000 pounds in 1948, twenty-five percent more than for 1947, and largest output of record. Exports continued to be an important outlet for tall oil, amounting to 37,000,000 pounds in 1948, compared with 30,000,000 the previous year. Paints, varnishes, linoleum and oil cloth took 18 percent of domestic disappearance of tall oil last year, with a similar proportion in 1947.

Canada Modifies Import Restrictions

OTTAWA — The Emergency Import Control Division reports that authorizations have been granted to bring about some adjustments which will modify restrictions on the importation of certain products from non-scheduled countries on and after July 1. They include: Paper sacks or bags of all kinds, printed or not, though not including those made from twisted paper; paper envelopes; correspondence and printed letterhead papers, not including plain unprinted typewriter or copying papers; creped tissue paper and manufactures thereof; Christmas seals, stickers, tags and enclosure cards, printed, embossed or otherwise decorated; card and other games, score reckoners, score pads, tallies and place cards, of paper or cardboard; festivity, carnival and celebration supplies and decorations of paper or cardboard, including costumes, hats, caps, headbands, masks, horns, serpentines and confetti; blank books; paper weights and paper knives.

Wool Stock Institute Combs Problems

NEW YORK—Important problems facing the Wool Stock Institute, a division of the National Ass'n., of Waste Material Dealers, Inc., were discussed at an executive committee meeting at the NAWMD office in this city on June 9.

In addition to Jack Gluckson, of the Gluckson Wool Stock Corp., Brooklyn, N. Y., who is president of the Institute, the following attended: Louis Gottlieb and F. H. Hofheimer of Louis Gottlieb & Co., Harry Kurtin of the Kurtin Wool Stock Co., Larry Moelis, of L. & R. Moelis, Eugene Kresch of the Kresch Wool Stock Corp., all of Brooklyn; and Robert Miller, of R. & V. Miller, Inc., Newark, N. J., Clinton M. White, managing director of the NAWMD, and George W. Reid, secretary-treasurer of the Institute.

U. of M. Student Honored

ORONO, Maine — William E. VanVoorhis, Saugerties, N. Y., has been elected by the seniors and graduate students of pulp and paper technology at the University of Maine to have his name inscribed on the Paul D. Bray Memorial plaque. The plaque was presented to the university in 1948 in memory of the late Paul D. Bray, former head of the pulp and paper department.

Canadian Employment Down

OTTAWA—There were 78,850 employes reported at March 1 this year in the logging industry across Canada, the Canadian Government announces. They received $3,152,204 in weekly salaries and wages on that date, with the average weekly salaries and wages amounting to $39.98 at March 1 this year compared with $38.81 at Feb. 1 and $39.94 at March 1 a year ago.

Employment in this industry stood at 165.4 at March 1 this year as compared with 177.4 at Feb. 1 and 234.6 at March 1 last year, with payrolls standing at 330.7, 342.4 and 469.6 on these same respective dates, on the base of June 1, 1941 being equal to 100. Male employees in this industry made up 98.3 percent of the workers and female 1.7 percent on March 1 this year, whereas on the same date last year males comprised 98.2 percent and females 1.8 percent.

Norway Banishing Wood As Fuel

LAKE SUCCESS, N. Y.—Norway plans to use electricity generated by water power for three-quarters of all her heat, it was reported on June 10 by the United Nations.

A major economic change was forecast, by which Norway will cease to import fuel and halve the use of her domestic fuels, wood and peat. The wood thus saved will be used for industry and paper pulp and the peat for chemistry.

The report is a paper to be delivered at the United Nations conference on conservation and organization of resources in August. It was made by J. Holmgren and Alf O. Hals of the Norwegian Institute of Technology, Trondheim, and James Lindermann of the Oslo Municipal Electric Supply Co.

Fines Upheld, Sentence Halved

CHICAGO—Alvin E. Sandroff, has been sentenced to serve a year and a day in jail for violating OPA regulations in 1944.

The sentence was affirmed by the U. S. Court of Appeals in Cincinnati, Ohio. Mr. Sandroff originally was sentenced to a two-year term and he and his Thomas Paper Stock Co., were fined $10,000 each. An earlier appeal and new trial brought a reduction of the prison sentence. The fines were unchanged. The government charged Mr. Sandroff's company made overcharge on war-time paper sales.

Canadian Inventories Shrink

OTTAWA—In a preliminary report, the Canadian Government reveals that the value of inventories of pulp and paper mills throughout Canada has declined to 139.1 in this industry during March this year compared with 140.8 in the preceding month, though in January this was 140.7 and in December, 1948, stood at 140.6 after a steady upward climb for several months, on the basis of 1947 average being equal to 100. It was the first drop in such values since Aug., 1948.

Australian Firm Seeks U. S. Lines

NEW YORK — Emm. Yannoulatos (Overseas) Pty., Ltd., Sydney, Australia, affiliate of the firm of the same name in London, England, is interested in contacting manufacturers of paper and allied lines, printing machinery and printing accessories, the paper division of that firm reports to *Paper Trade Journal*.

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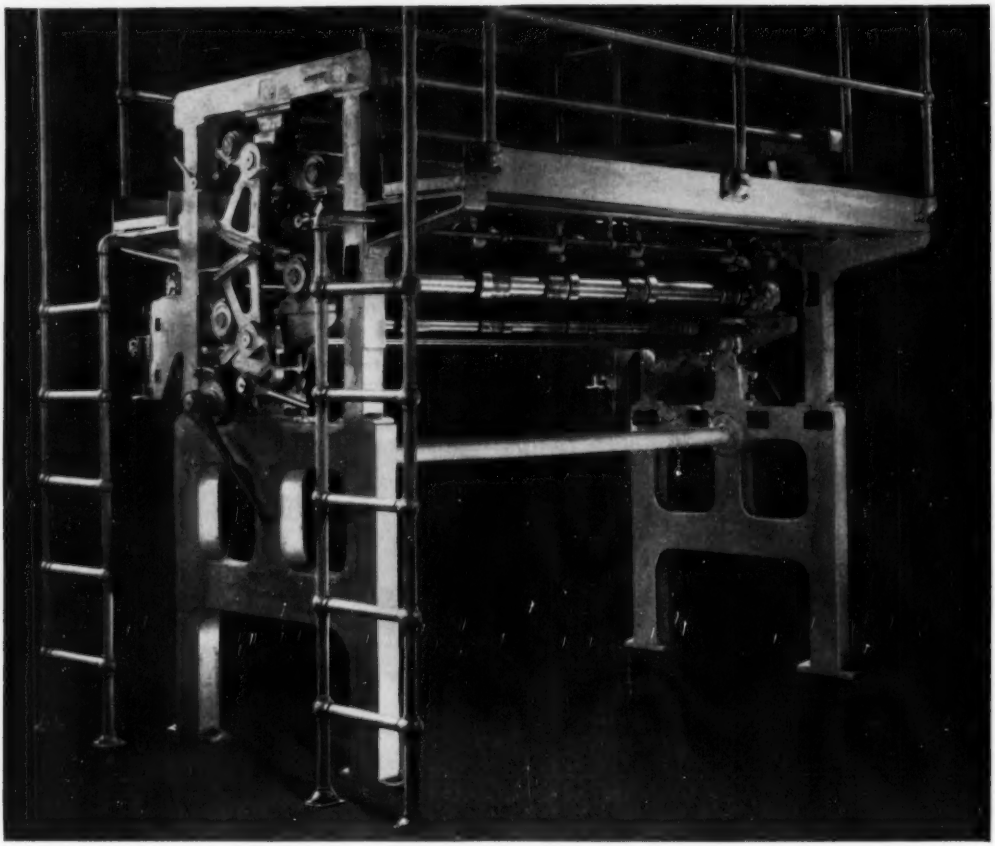

This slitter is built of box section frames, for hard continuous operation, and will efficiently handle 95 percent of the grades of paper and paperboard manufactured today. The unit can be operated with practically any type of sheeting equipment where fast change-over from one sheet-width to another is required. It eliminates shutdown time when changing sheet-width and also reduces waste due to resetting of slitters.

This unit, when combined with our new rotary sheet-cutters, permits continuous sheet operation. Changes of width and length of sizes are made without shutting down the combined units. The change-over from one slitter section to the other is fast, simple, and accurate.

Positive throwout of top slitter blades is accomplished through the use of a handle on each slitter section. One quarter-turn of the handle moves all blades in the section either in or out of normal operating position.

The slitter may be driven separately, from the sheet cutter, or direct from the paper machine line shaft. Each section is driven as a separate unit, complete with clutch to eliminate shock loads when change-over is made. All moving parts are encased in antifriction bearings.

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Structural Boards from Cedar Barks

By
H. SCHWARTZ
Forest Products Laboratory of Canada

Experiments of a preliminary nature were carried out at the Forest Products Laboratory in Ottawa on the preparation of structural boards of the insulating and hard-pressed types from Eastern cedar and Western red cedar barks. There were several reasons for the selection of these barks, one of the most important being the fact that they are fibrous in nature—a property which is favorable for board preparation.

The precedure followed and the results obtained are given in the following paragraphs.

Low Density Boards

The material used consisted of either Eastern cedar bark chips about one-inch square or Western cedar bark slabs which had been put through a two-knife laboratory chipper. The material was steamed at 100 p.s.i. for 20 minutes and then treated at 2.5 percent consistency in a Valley beater for 13 minutes in the case of the Eastern cedar and for 20 minutes in the case of Western cedar bark. Three percent of a mixture of rosin and wax emulsion size was added to the stock in the beater, prior to the formation of sheets or mats on a 12 by 12 inch hand-sheet machine. The mats were then formed into boards in a hydraulic pressing between wire screens at 100 p.s.i. for one minute. Boards were also made in which the mats were pressed to a thickness of 0.45 inch in the press. After removal from the press, such boards increased in thickness to close to 0.5 inch. The boards were dried in an oven at 125 to 140 degrees C. for six hours and allowed to condition for a week at 65 percent relative humidity and 22 degrees C.

Three boards were made from bark alone and three boards from mixtures of bark and (1) ten percent sulfite pulp screenings and (2) ten percent groundwood pulp screenings. From each set of three boards, four to eight strips, 10 inches long and 1.5 inches wide, were tested for tensile strength, and four pieces, 4 by 4 inches in size, were tested for water absorption in two hours. The average results appear in Table 1.

It was aimed to prepare boards about 0.5 inches thick and of a specific gravity of about 0.28. It was considered that the boards would be acceptable as regards tensile strength, if they conformed with U.S. Federal Specification LLLF-321b December 17, 1942, for fiberboard, which calls for a minimum tensile strength of 150 p.s.i. The water resistance aimed for was a maximum absorption of water of seven percent upon immersion in water for two hours.

It may be noted from the Table that boards from Eastern cedar, when pressed to 100 p.s.i. have high tensile strength (617 p.s.i.) but are too thin and too dense. When pressed to a thickness of 0.45 inch in the press, the tensile strength, though a little lower (409 p.s.i), is still considerably above the minimum requirements. The specific gravity of the boards is also in an acceptable range. Western cedar bark alone does not produce a satisfactory board with regard to tensile strength, but does come within the acceptable range when ten percent of sulfite pulp screenings is added.

The water resistance of most of the boards was fairly good. It is considered that this property can be controlled, within limits, by proper sizing.

It might be pointed out that the experimental work reported here is only of an exploratory nature. The conditions used as regards pre-steaming, method of fiberizing, sheet formation, pressing, drying and conditioning are by no means optimum. The results are reported merely to indicate that a good possibility exists of producing boards of the insulating type from Eastern and Western cedar barks.

Certain objections are sometimes raised against the use of bark for insulating board preparation. Some of these objections are the dark color of the boards, their higher density than wood fibreboards, and the slow drainage of bark stock.

The question of the color appeal of a board is purely a matter of taste. The color of a board should of course play no part when the board is covered, such as in its use as a plaster base or as roofing material, or when it is painted.

The objection to a slightly higher density of an insulating board lies naturally in the fact that the insulating value is slightly reduced. Whereas certain barks might yield boards of higher density than those from wood fibre, it is apparent that boards of acceptable density can be prepared by relatively simple methods from the barks from Eastern cedar and Western red cedar.

The slow drainage of stocks from certain barks is perhaps the most serious objection raised against the use of bark. However, it might be pointed out that the stocks from the two barks under study had a satisfactory freeness, as measured by the Canadian Standard Freeness Tester, being over 700 cc.

Because of the relatively wide variation in physical and chemical properties between barks from different species, it is apparent that each bark must be treated individually when questions of utilization are under consideration.

Hardboards

A second series of experiments was carried out in which hardboards were prepared from barks from Eastern cedar and Western red cedar. The results obtained were not particularly encouraging.

Boards about 0.17 inches thick and of a specific gravity of about 0.9 were prepared. The procedure for their preparation, up to the stage of pressing, was the same as that described for the insulating type board. At this point

Table I

Properties of Insulating Type Boards from Eastern and Western Cedar Barks

	Eastern Cedar		Western Cedar	Western Cedar & 10% Sulphite Screenings	Western Cedar & 10% Groundwood Screenings
Pressing conditions	100 psi	Pressed [a] to desired thickness	100 psi	100 psi	100 psi
Thickness (inches)	0.37	0.48	0.46	0.45	0.52
Specific Gravity	0.38	0.29	0.27	0.28	0.30
Tensile Strength (p.s.i.)	617	409	42	210	93
Water Absorption in 2 hours (% by volume)	6.1	11.4	3.6	7.4	5.8

[a] Pressed to a thickness of 0.45 inch in the press.

Presented to Northeastern Wood Utilization Council Bark Conference and published in Bulletin 25 "The Chemistry and Utilization of Bark."

[1] Schwartz, S. L., Pew, S. C., and Schafer, E. R., *Paper Trade Journal*, 125, No. 14, 37 (1947).

Table II

Properties of Hardwoods from Eastern and Western Cedar Barks

Material	Eastern Cedar	Eastern Cedar & 10% sulphite screenings	Eastern Cedar & 10% groundwood screenings	Western Cedar	Western Cedar & 10% sulphite screenings	A commercial hardboard
Thickness (inches)	0.17	0.17	0.18	0.19	0.20	0.14
Specific Gravity	0.86	0.91	0.92	0.90	0.90	1.06
Modulus of Rupture (p.s.i.)	2790	3020	...	1530	1770	6660
Tensile strength (p.s.i.)	1992	2987	2612	1100	1167	4460
Water absorption in 2 hours (% by volume)	5.2	11.1	5.6	12.0	...	8.0

the mats were placed in a mold with a wire screen at the bottom and a stainless steel plate, coated with a lubricant, at the top. They were then pressed at a maximum pressure of 500 p.s.i. and a maximum temperature of 190 degrees C. for ten minutes, according to the three-stage procedure recommended by Schwartz, Pew and Shafer[1] for the preparation of hardboards from wood waste. The boards were allowed to stand at 65 percent relative humidity and 22 degrees C. for about a week prior to testing.

Boards were made as before from bark alone and also from mixtures of bark with (1) ten percent sulfite pulp screenings and (2) ten percent groundwood pulp screenings. The methods of testing of the boards were the same as for the insulating type boards except that specimens were also tested for static bending on a span of three inches. The average modulus of rupture as well as the average results of other tests are given in Table 2. Also included in this Table are the results on a commercial hard-pressed fibreboard.

Figures for modulus of rupture and tensile strength on Eastern cedar are about double the corresponding figures on Western cedar. However, they are still considerably lower than the strength figures for a commercial hard-pressed fibreboard, even after the addition to the stock of either ten percent sulfite pulp or groundwood pulp screenings. They are also considerably below the minimum requirements specified in U.S. Federal Specifications LLL-F-311 for hard-pressed fibreboard. These specifications call for a minimum density of 60 lb. per cu. ft. and a minimum modulus of rupture of 6000 p.s.i. for boards 0.125 ± 0.0156 inches thick. It is possible, however, that the properties of the boards might be improved to a certain extent by improvements in methods of preparation.

It is apparent that hardboards prepared from Eastern cedar and Western red cedar barks, by the method outlined above, do not meet current strength standards of wood fibre hardboards. Whereas it is possible that uses might be found for cedar bark hardboards for purposes where the high strength properties of certain commercial wood fibre hardboards is not required, it is perhaps more promising to look to the insulating board field for possible uses for cedar bark.

Slag on High Pressure Boiler Heating Surface

By

E. F. WALSH

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Boilers designed and installed during the past eight years have been plagued more or less with objectional deposits accumulating on the superheater and economizer tubes. These deposits appear to become more troublesome with time, which would indicate a progressive effect of some nature toward the formation of slag.

As the operating pressure and total steam temperature has increased, another type of scale or slag accumulating in the cooler passes of the boiler has been observed which also has been found very troublesome and which cannot be removed without taking the boiler out of service.

The reason for these scales or slag deposits has been studied by a number of engineers, both in this country and abroad and a brief summary of some of the published theories and experiments is herein given.

From available data it is believed the subject should be divided into two parts.

(a) Deposits attributed to melted ash, and confined mostly to primary and secondary furnaces where temperatures for the most part will be above the melting point of the ash.

(b) Deposits in that part of the boiler where the temperature of gases has been lowered to a point beneath the fusion point of the ash, in which case another reason must be established for adhesion of the fly ash and scale formations on the heat transfer surfaces.

In case (a), slag formation will depend largely on the fusion point of the ash and the kind and quality of elements present. If the ash particles reach the sticky or agglomerate stage while in the furnace, there is a tendency to adhere to the tubes on impingement. The particles may or may not have been completely burned before deposition, or the ash has reached a state of complete oxidation. From the work of H. F. Johnstone at the University of Illinois, this is quite an important factor. He reports the agglomeration point of Ferrous Sulfide (FeS) at 860° F., Ferric Disulfide FeS_2 at 840° F., Ferrous Oxide (FeO) at 1065°F., Calcium Oxide (CaO) at 2100° F., and a mixture of 92 percent Ferric Oxide (Fe_2O_3) and 80 percent Calcium Oxide (CaO) at 869 F. It is quite apparent therefore that if the pyrite is present in the original ash, it will influence the agglomeration point of the ash to a certain degree until it has reached a stage of complete oxidation, i.e., the sulfur being completely burned to SO_2 or SO_3 and the iron oxidized to Fe_2O_3. It is also quite apparent that the Calcium Oxide (CaO) acts as a flux to lower the softening point of a possible Fe_2O_3 CaO mixture. While there is no definite data on the effect of Sodium and Potassium Oxides when present in the original ash, it is reasonable to believe that they too will act as fluxes in lowering the agglomeration temperature.

An example was coal from a strip mine at Atkinson, Illinois. While the melting point of this coal was approximately 2300° F. yet the ash would fuse so badly on the grates that the tuyeres of the Taylor stokers would become clogged in a very short time. It was believed that this condition was caused largely by the fluxing effect of the oxides of Calcium, Magnesium, Sodium and Potassium, and the incomplete oxidation of iron and sulfur in this reducing atmosphere.

In case (b) where slag and scale deposits form in Superheaters, Economizers and Air Preheaters, after the gas temperature has been reduced to a point below the fusion temperature of the ash, it is assumed some chemical attack must be made on the metal surfact causing a scale to form and producing an environment in which fly ash may be deposited.

In a study of this kind it is quite natural to try and correlate a relationship between constituents of the original ash and the flue gases. One of the first elements you suspect in the gases

Presented at the Spring Meeting, Fuels Division, American Society of Mechanical Engineers.

is sulfur. Regardless of what form the sulfur may exist in the original fuel, it is all changed to sulfur Dioxide (SO_2) gas under conditions of combustion, and remains thus until it reaches an environment causing its oxidation of Sulfur Trioxide (SO_3) and while Sulfur Dioxide in the presence of moisture is corrosive to an appreciable degree, it is more so after being oxidized to Sulfur Trioxide. This of course produces Sulfuric Acid with water, is hygroscopic, and raises the dew point in proportion to its concentration. The latter, as we will see later, becomes a major factor in corrosion and the building up of scale and stalagmitic formations in the after passes of the boilers.

W. F. Harlow writing in "Engineering" in 1943, in an article "Causes of high dew point temperatures in boiler flue gases," pointed out that the oxidation of SO_2 to SO_3 cannot take place above a temperature of about 2500°F. To bring about this oxidation reaction, it is reasonable to believe that the gases must come in contact with a catalytic agent, presumably on the metal or refractory surfaces.

J. R. Rylands and J. R. Jenkinson also writing in "Engineering" in 1943 on "Bonded deposits on economizer heating surfaces," pointed out that there are two kinds of deposits present in the cooler sections of the boilers. First, a dust or fly ash which deposits on hot surfaces either refractory or metallic, which are at the same temperature as the gases. These do not adhere to the hot surfaces and are comparatively easy to remove with the conventional type soot blower. Second, a hard scale adhering tenaciously to the cooler tube surfaces, and which is not easily removable with soot blowers.

As Superheaters, Economizers and Air Preheaters present cooler surfaces, we first consider dew-point of the gases as a source of primary binder of the ash or dust.

It is a well known fact that sulfuric acid being a dehydrating agent might have marked effect on the dew point. Taylor of England points out that with 5.1% water vapor in the flue gases, the dew-point is at 92°F. If, however, .2% of sulfuric acid is present the dew point is raised to 405°F.

H. F. Johnston of the Engineering Experimental Station, University of Illinois, points out that the amount of sulfur trioxide normally found in the flue gases is very small. He shows that in two flue gas analyses the SO_2 content by volume was .357 and .133 and the SO_3 content was .002% and .010% respectively. It is therefore indicated by present data that a definite environment must be present for SO_3 "Manufacture" from the flue gases while passing through the cooler parts of the boiler.

During the investigation of economizer deposits by Rylands and Jenkinson they observed a period of "immunity" with new boiler installations of from six to twelve months. During this time a film of scale is assumed to slowly build up on the surface of the metal, after which the action is very much accelerated. Various investigators have found this to be a coating of ferric sulfate or ferric oxide. It is assumed that infinitesimal amounts of SO_3 naturally present in the gas together with moisture is absorbed in the surfaces of the metal even though the temperature is above the normal dew point. The sulfuric acid thus formed attacks the iron forming ferrous sulfate, which later is oxidized to the ferric condition. The latter is not only hygroscopic in nature but is a powerful catalyst in the oxidation of SO_2 to SO_3, and from this point on, the local sulfuric acid "Manufacture" becomes accelerated.

This fact has been fairly well established by experiments carried out in England by Harlow. Flue gases which were found to exhibit normal dew point characteristics were taken from a small boiler and passed through a mild steel tube containing the catalytic materials. Arrangements were made to heat the tube to any desired temperature up to 1200°F. The dew point temperature of the bases was observed at inlet and outlet of the tube. It was found that when the gases were passed over rusty mild steel scrap heated to a temperature of 1000°F. an increase in dew point was obtained which indicated that an increase in sulfur trioxide content had been brought about.

In order to place this matter beyond doubt, glass water cooled elements were introduced into the gas stream before and after the catalyst tube, the outer surface of the elements being maintained at the same temperature of the gases before treatment. The gases were then passed through the apparatus for 30 minutes. After this time it was found that the elements preceding the catalyst tube was covered with apparently dry dust, whereas that following the catalyst tube was covered by a copious deposit of "dew," which was found to be sulfuric acid.

It was found that the degree of conversion was greatly affected by heat, and therefore the experiments with rusty mild steel were extended over a range of temperature from 200 to 1200°F. Small amounts of acid were formed at low temperatures and slowly increased to about 800°F. From this point it increases rapidly to 1100°F., after which it drops rapidly to 1200°F. The tube and contents were then sandblasted to remove all oxide and the surface sprayed with aluminum. This inhibited the action for the first 30 minutes, after which the action again started, and at the end of 3 hours the dew point at the outlet had reached 350°F. with considerable evidence of oxidation of the metal. To further substantiate the catalytic action produced by the iron oxide, Harlow sprayed the inside of the tube and oxidized iron with milk of lime ($Ca(OH_2)$ while in the heated condition. Under these conditions no appreciable amount of acid was formed, nor elevation of the dew point occurred.

There seems to be a difference of opinion among the investigators as to the true catalyst responsible for the conversion of SO_2 to SO_3. Harlow attributes the action to iron oxide, and his experiments seem to bear out his contention. However, Johnston, Rylands and Jenkinson, Ralston, Seaver and Thurston and others state that the action is due to ferric sulfate. If we again refer to Harlow's work, he indicates that the conversion is greatest above 900°F., the breakdown temperature of ferric sulfate. It would indicate, therefore, that the oxide theory was more nearly correct, although the equilibrium condition between ferric sulfate, ferric oxide and sulfur dioxide ($Fe_2O_3 + SO_2 + Fe_2(SO_4)_3$ might be the cause for accelerated action between 800°F. and 1200°F. Nevertheless these investigators seem to have established the reason, and to a certain degree the mechanism, for the oxidation of SO_2 to SO_3 with the resultant rise in dew point of the gases. It does not, however, satisfactorily account for the build up of scale into stalagmitic formation. Rylands and Jenkinson explain this phenomenon in the light of aluminum sulfate formation. In their study of numerous analyses of slag formations they found a number of elements common to all slags. These were free sulfuric acid, alumina in various forms, ferric and aluminum sulfate. They reasoned that after the formation and concentration of sulfuric acid on the tube surface, the dew point would be raised sufficiently to produce an environment wherein fly ash would stick to the surface. The concentrated acid would attack the alumina forming aluminum sulfate. Further study of the characteristics of aluminum sulfate ($Al_2(SO_4)_3 + 618H_2O$) showed that when this salt was quickly heated to 420°F., it began to lose water of crystallization and go into an agglomerate state. They reasoned further that when this reaction took place on the tubes and went through this agglomerate sticky condition, it would accelerate the collection of fly ash, and thus the stalagmitic formation would be accelerated and continuous. They ran laboratory tests with hot concentrated sulfuric acid on alumina which appears to prove their point.

To summarize the theories of the various investigators, we have:

(a) A period of immunity in which infinitesmal amounts of SO_3 and moisture are being absorbed in the surface of the tubes and attacking the metal.

(b) Formation of ferrous sulfate and ferrous oxide with subsequent oxidation to the ferric state.

(c) Catalytic action of ferric sulfate or ferric oxide, or combination of both, in oxidizing SO_2 to SO_3.

(d) Accelerated "manufacture" of

sulfuric acid on surface of tubes with subsequent rise in dew point temperature producing a moist condition, wherein fly ash will collect.

(e) Attack on the alumina in the ash as the temperature and acid concentration increases forming aluminum sulfate.

(f) Precipitation of aluminum sulfate from the concentrated sulfuric acid solution with subsequent formation of a sticky agglomerate mass on loss of its water of crystallization which produces a greater invironment to collect more fly ash.

(g) Acceleration of the scale and slag formations as more sulfuric acid with occluded fly ash accumulates, resulting in stalagmitic formations.

Sulfur appears to be the principal offending element in the original ash in the fuel. The lower the sulfur content the less sulfuric acid that can form and the final agglomerate mass called slag.

The published literature on the subject of slag deposits offered some encouragement in that if a means could be found to prevent or retard the formation of Sulfur Trioxide (SO_3), then a marked reduction in slag formation should result.

Our first experiments were conducted on a Combustion Engineering Company boiler having a capacity of 430,000 pounds steam per hour and operating at 1215 psi. and 920° F. total temperature. This boiler was installed in January 1941 and had been fired with fuel oil and pulverized coal as combined fuels and each fuel separately. The first year of operation of this boiler did not produce any serious operating conditons.

During the second year slag conditions in the superheater became a serious problem. The superheater had to be hand lanced at frequent intervals to maintain sufficient draft for normal load. It was never possible to thoroughly clean the superheater while operating, thus the gas pressure drop across the superheater became excessive making it extremely difficult to regulate the steam temperature by the bypass damper.

Severe fouling of the superheater occurred and continued to occur after about two months of operation following boiler overhaul and mechanical cleaning.

During the annual overhaul in 1946, samples of the slag deposits on the superheater tubes were removed for analysis. This slag was constructed of two layers. The inner layer or that portion adjacent to the tubes was the result of culverized coal and fuel oil firing. The outer layer was definitely laid down during a period in which fuel oil was being burned and represented the type of deposit that can be expected from the present type of fuel oil and under firing conditions peculiar to the boiler in question.

The inner layer or that position of the deposit nearest the tube surfaces was of a reddish nature and was 51.5 percent soluble in water. The initial deformation temperature was 1900° F. The analysis is shown in table I.

Table I

	Percent
Silica, $Si\ O_2$	5.4
Iron and Aluminum, $Fe\ O_3$, $Al_2\ O_3$	28.2
Sulfate, SO_4	33.2
Calcium oxide, $Ca\ O$	6.0
Magnesium oxide, $Mg\ O$	2.8
Ignition Loss	1.2
Probable Combinations	
Sodium Sulfate, $Na_2\ SO_4$	49.3
Sodium Silicate, $Na_2\ Si\ O_3$	11.0
Iron and Aluminum, $Fe_2\ O_3$, $Al_2\ O_3$	28.2
Calcium oxide, $Ca\ O$	6.0
Magnesium oxide, $Mg\ O$	2.8
Ignition Loss	1.2
Nickel	Trace
Chromium	Trace

The outside layer consisted of a hard black crystalline material and was 17.1 percent soluble in water and its initial deformation temperature was 2150°F. The analysis is shown in table II.

Table II

	Percent
Silica, $Si\ O_2$	19.8
Iron and Aluminum $Fe_2\ O_3$, $Al_2\ O_3$	58.9
Sulfate, SO_4	6.1
Calcium Oxide, $Ca\ O$	1.5
Magnesium Oxide, $Mg\ O$	3.0
Ignition Loss	Trace
Probable Combinations	
Sodium Sulfate, Na_2SO_4	9.0
Sodium Silicate, $Na_2\ SO_3$	17.0
Iron and Aluminum, $Fe_2\ O_3$, $Al_2\ O_3$	58.9
Silica, $Si\ O_2$	11.3
Calcium Oxide	1.5
Magnesium Oxide	3.0

The increase in the initial deformation temperature of the outer portion of the slag is probably the result of a gradual increase in the gas temperature entering the superheater due to slag accumulations on the furnace tubes. The higher the gas temperature the greater the percentage of the total ash in the fuel that will be in a sticky state as it leaves the furnace resulting in an accelerated accumulation once it begins to form on the metal surfaces.

A sample of the deposit in the gas flues between the air preheaters and induced draft fans was also analyzed. After igniting the deposit to a red heat it burned red in color due to the high iron content. Upon cooling and standing at room temperature in a humid atmosphere it became pasty and very sticky. This was due to the presence of anhydrous sulfuric acid absorbing moisture. Analysis of the deposit is shown in table III.

Table III

	Percent
Silica, $Si\ O_2$	0.9
Iron and Alumina $Fe_2\ O_3$, $Al_2\ O_3$	44.7
Sulfate, SO_4	55.6

Recognizing that the boiler apparently was immune to slag troubles during its first year of service and that laboratory experiments had shown that if iron surfaces were protected with a lime deposit, SO_3, which is the principal character in the formation of deposits, slag could be prevented from forming, the following program was decided upon.

During the annual overhaul period in 1947, the gas surfaces of the boiler in its entirety was thoroughly cleaned and coated with a lime slurry. Of extreme importance was that the metal surfaces were neutralized before applying the lime.

Soft water from a hot process softener having a pH value of not less than 11 and a PO_4 content of not less than 10 ppm. was sprayed on the slag for a period of about eight hours. The slag absorbed sufficient water to dissolve the binder between the metal surfaces and the slag, making it easily removed. After all the slag was removed the metal surfaces were washed with alkaline water until the acid in the pores of the metal was completely neutralized. The same treatment was given to the induced draft fans, air preheaters and duct work.

A lime slurry was then prepared by dissolving hydrated lime in water to a consistency that could be sprayed with a commercial paint gun. Metal surfaces were then well coated with lime.

After completing the described treatment the boiler was placed on the line and operated a year without any appreciable deposits. No slag difficulties were encountered during the year and the absence of the usual acid paste on the duct work was encouraging.

Another boiler somewhat similar in design was similarly prepared and treated after it had operated six months. This boiler has been in service 16 months and to date there has been no evidence of serious slag difficulties.

In addition to the lime coating on the metal surfaces, hydrated lime has been added to the coal on the conveyor belt at the rate of 50 pounds to 400 tons of coal. There has been no evidence to date to indicate that the addition of lime to the fuel in this manner has had any marked effect on reducing slag formation.

Conclusions:

The published literature on the subject of slag deposits offers some encouragement in that if a means could be found to prevent or retard the formation of sulfur trioxide, then a marked reduction in slag formation should result.

Experience has dictated that new boilers are immune to objectional deposits for varying periods of time depending upon the type of fuel used. This indicates that until the metal surfaces have become saturated with sulfuric acid, no serious slag conditions result. Of importance then, is to thoroughly wash and neutralize all boiler surfaces when the boiler is off for inspection and cleaning. Experiments indicate that once a year is sufficient for this operation.

Iron oxide is considered a catalyst responsible for the conversion of SO_2

to SO_3. If the metal surface areas exposed to the flue gases could be reduced, then there should be less sulfuric acid formed on the boiler surfaces. An application of lime slurry ($Ca(OH_2)$) over the neutralized metal has shown by experiment to reduce appreciably the amount of slag deposits.

The presence of sulfuric acid on a surface increases the dew point of the gases, causing the ash in the flue gases to adhere to the surface resulting in slag. This process is cumulative once the conditions for its formation becomes present.

Experiments indicate that if the boiler surfaces are thoroughly washed and neutralized and coated with a lime slurry ($Ca(OH_2)$) little or no corrosion will take place and slag accumulations will be reduced.

Continuous feeding of ($Ca(OH_2)$) to the furnace does not appear to be of any value in retarding slag formations. Experiments should be continued along this line.

In any event it appears that if we are to have slag and corrosion free boilers, a protective coating must be devised that can be applied to all metal parts exposed to flue gases which will be capable of withstanding temperatures up to 1200 Deg. Fahrenheit.

Capital Expenditures Now?

By

KURT H. SIECKE

Consulting Engineer, Portland, Ore.

In two previous articles, the ability of pulp and paper mills built under conditions recently prevailing to operate competitively and show reasonable earnings was discussed. The second article showed that additional investment is usually necessary in up-grading a mill's product but also indicated that the better price obtained more than paid for increased operating and fixed costs per ton.

If this were not true, there would be no inducement to manufacture higher-grade products, with the result that the greater skills and additional investments would go unrewarded. By reason of the tremendous demand for all grades of pulp, the recent market condition has approached a situation where the manufacture of the lower grades was relatively more profitable, and even now, a current market report indicates that the demand for fine papers is not as active as that for standard grades and for pulp.

The demand for paper upon which the market is based is too complicated for brief analysis, but a fundamental characteristics is its comparatively fixed pattern. This is brought out by Table I showing the percentage of each classification produced in 1939 and 1948. In spite of an overall fifty percent increase in national tonnage and a per capita increase of 37 pounds, this comparison shows little variation in relative production of each grade excepting a reduction in news and a minor increase in building, insulation, and tissue papers.

[1] The third article on this subject.

Table I

United States Paper Production 1939-1948

	1939	1948
Wrapping and Industrial	29.9%	30.9%
Book Paper	20.5	20.4
Building Paper and Insulation	8.8	11.5
Tissue Paper	8.7	10.7
Writing Paper	7.9	8.3
Newsprint Paper	12.8	7.7
Groundwood Printing and Specialties	7.2	7.5
Fine Papers (not writing)	1.7	2.1
All other Papers	2.5	0.9
	100.0%	100.0%

Total Tons Produced—1939 ..... 7,484,148 tons
Total Tons Produced—1948 .....11,193,156 tons

Since it may be assumed that supply and demand are in approximate balance for the entire United States, it is obviously impractical for any considerable number of mills to improve their position by up-grading their product except by displacing some of their competitors.

However, this also emphasizes the relation between market conditions and production and illustrates the importance of adequate cost analysis so as to manufacture the most profitable grades in case a mill is so designed as to permit making a number of different grades. It points to the desirability of designing a new mill or modifying an existing mill so as to provide all possible versatility, and by so doing, to switch from unprofitable to profitable grades on a spotty market.

To accomplish this, however, requires extremely close cooperation between the sales organization and the mill, as well as very good timing. The sound basic training in manufacturing methods and operating costs, which prospective members of the sales staff of the largest organizations receive, is evidence that their top managements recognize the importance of such cooperation. An analysis of the manufacturing costs in Table II, which accompanied the second article of this series, will demonstrate the manner in which grade requirements affect costs.

Lack of space prevents giving complete information on man-hours, cost of material and labor, and conversion factors, which form the basis of cost accounting, but examples will be given of the variation in these cost elements under different conditions. Attention is also called to the manner in which a change in process in one department may considerably affect costs per ton in several other departments, illustrating the need for great caution in using partial cost estimates, particularly in comparing the effect of some change in equipment layout upon manufacturing costs. These elements in operating cost analysis will be touched upon in order.

Labor Costs

Labor costs have always been given a great deal of attention and are now receiving special consideration by reason of the substantial increase in hourly rates which has accompanied the post-war economic conditions. In the pulp and paper industry, the cost of labor is a really significant part of direct costs in only the wood mill and the finishing room and with present log prices, it is far more important to reduce wood waste than to give undue attention to man-hours per MBM or per ton.

Actually, total cost of direct and indirect labor in a modern pulp or paper mill is only about fifteen percent of manufacturing cost whereas materials, including wood, chemicals, fuel, water and repair materials may represent more than fifty percent of this cost. The emphasis under present conditions should therefore be upon training of personnel, attention to organization and morale, and modernization of plant to attain good yields and reduce unnecessary waste.

In other words, while labor efficiency is greatly to be desired, in most pulp and paper mill operations production volume and costs are not a direct function of man-hours, but depend upon the type of equipment used and the skill and attention with which it is operated. Only in the wood break-

Table II

Comparison of Manufacturing Costs
165 Ton Sulphite Mill

	Sulphite Manila Wrapping	Bleached Sulphite Writing
Direct Costs		
Woodmill and chipper including logs	$55.80	$59.60
Pulp mill and screen room	20.85	19.41
Bleach plant	....	7.66
Beater room	6.85	19.31
Paper machines and jordans	17.97	21.60
Finishing and shipping	3.13	13.72
	$104.60	$141.30
Indirect Costs		
Manufacturing burden	17.12	23.35
General engineering and maintenance	2.01	2.90
Depreciation and obsolescence	7.47	11.18
Taxes and insurance	19.90	28.77
Cost per A.D. Ton	$151.10	$207.50
Freight allowance	26.70	36.60
Total Manufacturer's Cost	$177.80	$244.10
Maximum Selling Price	$195.00	$300.00

down plant, in finishing operations, in converting, and in warehousing can the usual techniques of the industrial engineer be advantageously employed.

Material

The selection of types and makes of equipment has two prime objectives:

1) The functional purpose by which the raw or partially processed material is to be treated so as to impart the desired characteristics

2) The economic purpose by which the cost of processing is to be minimized and the ratio of treated to untreated material is to be as high as possible.

A third objective might be the desire to keep the cost of the equipment as low as possible for the attainment of the first two prime purposes.

The importance of equipment in saving raw material is aptly illustrated in the substitution of the hydraulic barker and whole-log chipper for the outmoded procedure of sawing logs in blocks, mechanically cleaning these blocks, and then running them through the chipper. The saving in wood substance by eliminating saw kerf and barking waste may reach fifteen percent, and the retirement of headsaw, slasher, splitter, and conventional wood cleaning equipment results in a reduction in labor cost of about fifty percent. Maintaining satisfactory chip quality and thorough screening also result in measurable savings both in wood utilization and in consumption of chemicals.

Indirect cooking with either the sulphite or kraft process promotes economy of chip consumption by more uniformity and a resultant higher yield, and by avoiding acid or cooking liquor dilution which also results in a saving of chemicals amounting to as much as twenty percent compared to direct cooking under ordinary conditions. The use of stronger acid or liquor made possible by avoiding the dilution from steam condensate shortens the cooking time, and thus increases daily pulp production from each digester, reduces steam consumption, and effects savings in treated boiler feed-water by returning the condensate to the boiler plant.

The loss of material by knotting and screening in the form of rejects is usually expressed as a percentage of dry weight which depends largely upon the quality standards desired. Dirty, poorly graded chips and improper cooking are reflected in an increase in screening rejects, assuming the screen capacity to be adequate. Rejects will usually not be higher in a mill having high quality standards than in one making a lower grade product, because each step in the process is so controlled as to exclude most dirt, shives, uncooked or burned chips, and fibre bundles which constitute screen rejects. Thus, in a properly designed screen room, the proportion of rejects will run from 5 to 10 percent; a larger amount should be investigated as representing excessive waste of material.

Aside from a reduction in pulp conversion loss in bleaching, large material savings may be made by careful control of digester cooking and correlation with the bleaching process adopted. Thus, chlorine usage is not the exclusive measure of overall plant economy, there being a range in which the cost of digestion and loss of fibre will exceed the cost of chlorine saved. However, by correct bleach plant design, proper selection of equipment, and capable operation, reduction of chlorine usage by thirty five percent may be attained with pulps having a high bleachability by multistage bleaching when bleaching to a high white.

Saving of material in beating, on the paper machine, and finishing are primarily a matter of processing rather than equipment, aside from steam, lubrication, and fibre recovery from machine white water. Since some type of drier steam pressure control and condensate removal system, a circulating pressure-oiling and oil filtering system, and a decker, vacuum filter, or flocculent type of saveall are practically standard equipment on today's paper machines, these features will not be further discussed.

Conversion Factors

Conversion factors express the relationship between the successive steps in the pulp and papermaking process as well as the overall conversion from wood to the finished air dry paper. They have the greatest significance to all concerned, and to quote Charles Laughton in his version of Henry VIII, "The things that I do for England!" might aptly be applied to these tools for comparing production efficiencies day to day, year to year, or mill to mill.

Conversion factors must be used with great caution and may even require definition or detailed specification to insure an accurate application. For example, unless the log scale and the size of log or cord-wood stick is specified, the conversion to units of chips or tons of pulp may vary from 600 board feet to 1250 board feet per air dry ton of pulp even with the same species of wood, depending upon the size of the log. Such variations are seldom encountered at any one mill but comparisons between mills based on board measure may be grossly misleading. Wood to which the cord measure is applied is usually more uniform in size and consequently the conversion of about 1.85 cords per ton is definitely applicable.

Chip volume is subject to great variation by reason of packing and nesting of different sizes of chips, if non-uniform sizes are common, and unless the moisture content of chips is quite uniform, considerable differences in conversion from chip weight to tons of pulp will occur. Nevertheless, the most satisfactory measure of conversion from wood to pulp is the weight of chips fed to the digesters corrected for moisture content based on frequent samples. On this basis assuming 45 percent moisture and production of 2.75 cu. ft. of chips from a cu. ft. of solid wood, 480 cu. ft. of chips or 7000 lb. of wet chips would be converted into one ton of sulphite pulp or 1.05 tons of sulphate pulp.

Use of chemicals and steam per ton of pulp is a generally adopted measure of efficiency, but here again, unless one knows the kind of pulp and the mill equipment, statistics have only limited value. For example, a sulphite mill with seven digesters, a pressure acid system, accumulator, absorption tower and indirect heating, cooking a hard pulp with high recovery of relief liquor, used 230 lb. sulphur, 290 lb. lime rock, and 5200 lb. of steam per ton of pulp whereas another mill on direct cooking of easy bleaching pulp used 280 lb. sulphur, 330 lb. limerock, and 8000 lb. steam per ton of pulp.

I have no similar records applying to kraft mill indirect cooking, but a mill employing direct steaming, vacuum washing, a furnace recovery unit, and batch causticizing used 5500 lb. of steam, 200 lb. of salt cake, 55 lb. of nitre cake, and 50 lb. of lime per ton of pulp, which is of interest in comparison with the previous data as well as with kraft mills otherwise equipped.

Bleach plant efficiencies are usually considered in terms of chlorine usage, but depending upon the process employed, lesser quantities of other chemicals such as quick lime, caustic soda, sulphurous acid, etc., may be consumed. Differently cooked sulphite pulps may have a chlorine demand of from four to eight percent of their bone dry weight to produce a certain degree of whiteness and loss of weight in bleaching due to lignin removal and destruction of fibres may be 8 or 10 percent.

The technical aspects of bleaching are too involved for this discussion, especially the refinements of multistage bleaching. However, useful figures for single stage bleaching are 145 lb. of chlorine and 152 lb. of lime, or 470 gallons of bleach liquor per ton, and for two stage bleaching 50 to 75 lb. of chlorine per ton for chlorination and about 65 lb. of chlorine and 70 lb. of lime per ton for the hypochlorite stage. It may be assumed that the same degree of brightness is unattainable in single stage bleaching but that the conversion from unbleached to bleached pulp is higher. Water requirements are very indefinite but will not exceed 60,000 gallons per ton.

Machine production is a matter of individual study (subject as it is to all of the omissions and errors which may have occurred in preparing the stock furnish) because of the infinite number of variables affecting it. However, a mill management which is having difficulty in showing satisfactory earnings should first examine its pulping and stock preparation processes so as to guarantee a satisfactory machine furnish, and second consider the means for increasing machine production by

increasing speeds and reducing broke and white water losses. Increased machine production is very often made possible by lengthening wires, adding suction couch or presses, increasing drier capacity, changing drives, and improving ventilation. There are instances where the capacity of an existing machine has more than doubled by a combination of such improvements.

The foregoing discussion of labor costs, economy of materials, and conversion factors is intended to provide several important criteria by which to measure mill operations and to emphasize that each mill has its own peculiarities which give such criteria only a general value. Furthermore, it should be repeated that the several steps in wood pulping, stock preparation, and mill production are so closely related that a cost statement applying to only a single step in the process must be subjected to the closest scrutiny if erroneous and misleading conclusions are to be avoided. The honest equipment salesman finds himself continually battling the consequences of disregarding this advice.

In my opinion, the importance of saving raw materials and effecting the highest possible conversion in each step of mill operation has never been greater. The pulp-wood supply in many areas has diminished to such an extent that mills have been closed and dismantled. The future existence of other operations depends upon conservation of materials, and the current shift from the sellers' to the buyers' market places the responsibility upon managements to put their plants into the best condition for efficient operation.

In some instances, large organizations have closed mills whose cost of operation seemed too high and whose arrangement or equipment seemed seriously deficient. Smaller concerns should likewise consider shutting down individual machines or other units which are not in profitable production. Accurate knowledge of costs is necessary in taking such steps, but now is the time to obtain this information in order to avert a critical situation in the future when it may no longer be possible to meet competition.

It makes no sense to me to postpone plant improvements which now justify themselves economically, awaiting the day when equipment and labor may be purchased at a lower figure, if by so doing these savings are absorbed by present production costs. Furthermore, the prevailing uncertainty as to price tendencies which is reflected in the trend toward lower inventories, makes this seem like a good time to curtail production somewhat. Is it not good policy to use such idle time in improving one's ability to meet increasing competition with lower costs?

Patent Abstracts

● ***In addition to abstracts on the technology of pulp, paper and related industries, miscellaneous abstracts which may provide useful information to our readers are included herein.***

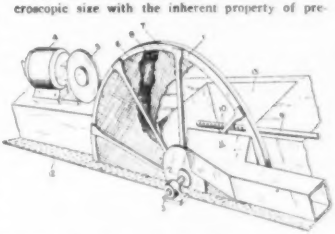
Issued Jan. 4, 1949

2,458,115 — Control of ion exchange systems. Walter R. Swenson, Flushing, New York, N. Y., a corporation of N.Y., assignor to The Dorr Co. (Inc.), Delaware.

In combination with a plurality of closed ion exchange cells containing beds of ion exchange material in submergence and which are operable in selectively changeable sequence through which a liquid is sequentially passed, each of which cells has feeding means for supplying liquid to the bed and discharge means for discharging liquid from the bed whereby liquid is being passed through the bed, and also has automatic control means for maintaining the liquid level substantially constant at the top of said bed, a control system for maintaining the liquid level in each cell substantially at the top level of the bed, comprising a compressed air supply header having a supply branch for each cell leading to and into the respective top portion thereof to supply air pressure to the liquid level in the cell, each supply branch comprising an exhaust portion, a reverse-acting diaphragm-controlled valve in which gas pressure from the cell acts upon the inner side of the diaphragm in a valve-closing sense disposed in each said supply branch between said supply header and said exhaust portion, a right-acting diaphragm-controlled valve in which gas pressure from the cell acts upon the inner side of the diaphragm in a valve-opening sense disposed in said exhaust portion, the inner sides of the diaphragms of said valves being simultaneously and directly under the air pressure in the cell, an interconnecting pressure-equalizing conduit between the outer pressure chambers of the diaphragm-controlled valves of each cell, a plurality of auxiliary pressure fluid supply headers, a pressure reduction device disposed in each auxiliary header adapted to be pre-set for admitting a different predetermined fluid pressure into each auxiliary header, parallel branch connections between each of said auxiliary headers and each of said interconnecting conduits, and selectively operable shut-off means in each of said parallel branch connections.

2,458,139 — Filter or strainer for liquids. Percival Lionel Boucher, Troon, Scotland, assignor to Glenfield and Kennedy Limited, Kilmarnock, Scotland, a corporation of Great Britain and Northern Ireland.

A filtering medium comprising an inner woven wire fabric sheet having interstices of microscopic size with the inherent property of preventing the passage of a liquid except when immersed therein, and an outer woven wire fabric sheet at each side of said inner sheet, the interstices of the outer sheet being relatively larger than the interstices of the inner sheet but sufficiently small that surface tension normally will maintain liquid in them, the outer sheet being sufficiently close to the inner sheet that when the outer sheets are wetted, surface tension of the wetting liquid will cause a body of the liquid to be maintained between the outer sheets so that the inner sheet will be maintained immersed in said body of liquid, whereby the microscopic interstices of the inner sheet are in fluid communicaiton with the body of liquid on each side of the inner sheet and surface tension of the liquid will be ineffective to prevent passage of a cleaning liquid through said sheets.



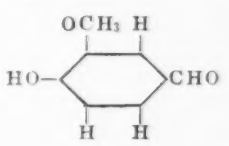
2,458,661—Composite pressure-sensitive adhesive sheet material. Henry N. Homeyer, Jr., Elmhurst, Ill., assignor to The Kendall Co., Boston, Mass.

A pressure-sensitive adhesive sheet material comprising a flexible sheet backing, a layer of an exposed pressure-sensitive rubber adhesive adherent to one surface of said backing, a flexible barrier layer comprising a butadiene-acrylic nitrile

co-polymer elastomer adherent to the other surface of the backing, and a thin flexible film of a material repellent to said pressure-sensitive rubber adhesive layer selected from the group consuperposed on said barrier layer.
vinyl esters, and polyvinyl butyral, adherently sisting of cellulose esters, cellulose ethers, poly-

2,458,295 — Production of vanillic acid. Irwin A. Pearl, Appleton, Wis., assignor, by mesne assignments, to Sulphite Products Corp., Appleton, Wis.

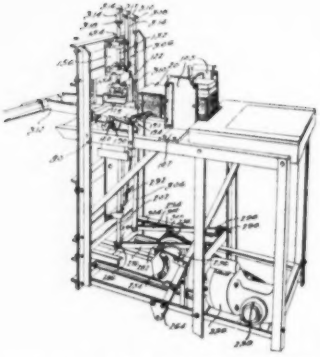
The method of preparing vanillic acid from vanillin represented by the formula:



which comprises adding a solution of a soluble silver salt containing one weight atom of silver to a solution already containing one mole of vanillin and an excess of alkali at a temperature of at least about 50° C.; whereby silver oxide is generated in a nascent condition in the presence of the vanillin and alkali, by which it is immediately reduced; and acidifying with sulfur dioxide to precipitate vanillic acid.

2,458,341 — Carton folding machine. Andrew R. Cake, Norfolk, Va.

In a machine for folding carton blanks having a bottom, side walls, and end walls and in which said end walls are provided with extensions adapted to fold over corner gussets, means for supporting said blank, means to engage and turn the side and end walls perpendicular to the plane of said bottom, meanls to engage the corner



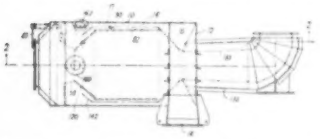
gussets and cause them to fold inwardly as said walls move, means to fold said extensions inwardly and downwardly over said corner gussets, and movable means engageable with said gussets during the folding of said extensions to hold said gussets in their inwardly folded position.

2,458,428—Coating compositions for moisture-proofing by hot melt coating. Martin Salo, Rochester, N.Y., assignor to Eastman Kodak Co., Rochester, N. Y., a corporation of New Jersey.

A non-blocking melt-coating composition adapted to give coatings of low moisture vapor permeability essentially consisting of at least 40% of a heat stable butyric acid ester of cellulose having a butyryl content of at least 42%, a total acyl content of at least 50%, a cuprammonium viscosity of less than 10 centipoises, a viscosity in 10% acetone solution at 25° C. of 10-200 centipoises, and not more than 2 hydroxyl groups per 24 cellulose carbon atoms, sufficient di-2-ethyl hexyl phthalate within the range of 10-40% to impart good fluidity to the composition at 150-200° C., ¼-7% of a wax and unhydrolyzed polyvinyl acetate having a viscosity of ½-10 centipoires, determined in solution in benzene of 86 g. polyvinyl acetate per 1000 cc. of solution at 20° C., sufficient in amount within the range 5-40% to render the wax permanently compatible with the composition.

2,458,497 — Combustion chamber. Ervin G. Bailey, Easton, Pa., assignor to The Babcock & Wilcox Company, Rockleigh, N. J. Filed May 5, 1945—Issued Jan. 11, 1949.

In a combustion chamber installation, a sheet metal cylindrical wall of single sheet thickness construction enclosing a combustion space, a



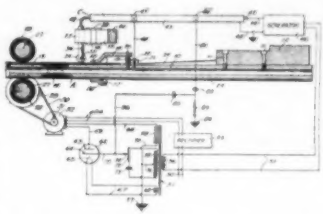
burner injecting burning fuel into the combustion space, a Venturi-like construction forming a gas mixing outlet, and means maintaining a moving envelope of cooling gas externally of said wall, said wall being formed over its entire operating area with a multiplicity of closely spaced wall openings with inner and outer gas deflecting wall parts associated with each opening, the inner deflecting parts being offset inwardly of said wall and extending downstream beyond their associated openings and thereby maintaining an inner envelope of cooling gas along the inner surface of the wall.

2,458,562—Process for producing a molding material and the article produced. James Andrew Clark, White Plains, N. Y., assignor, by mesne assignments, to American Viscose Corporation, Wilmington, Del. Filed Dec. 22, 1945—Issued Jan. 11, 1949.

A composition comprising a substantially dry and neutral, vulcanizable molding powder, the particles of which comprise a coagulated mixture of 1 to 12 parts by weight of an alkali-soluble, water-insoluble cellulose ether, 2 to 12 parts by weight of rubber, 0.1 to 1 part by weight of vulcanizing material, and an amount of a filler between 10 and 200 percent by weight of the other solids.

2,458,563 — Tube-forming device. Fred V. Collins, Des Plaines, Ill., assignor to William F. Stahl, Kenilworth, Ill. Filed Dec. 31, 1947 — Issued Jan 11, 1949.

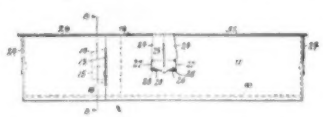
Apparatus for forming tubes from fusible flat web material, comprising a mandrel, means



including a variable speed motor for advancing said web forwardly of said mandrel and into tubular form, means including a co-axial cable for subjecting the edge portions of said tube to the action of high frequency radio waves to fuse said portions, and a gaseous discharge tube controlling said motor and coupled to said co-axial cable for regulating the speed of said motor.

2,458,578—Folding box. Guy John Evans, Buffalo, N.Y. Filed May 31, 1946—Issued Jan. 11, 1949.

A holding box comprising a wall having opposing ends which overlap one another, and means for connecting said ends including a ver-



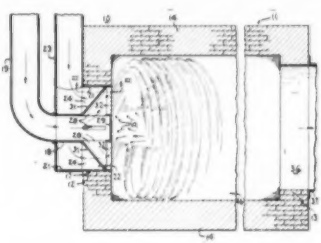
tical slit formed in one of said wall ends, a tab arranged on the other wall end and projecting through said slit from one side of the respective wall to the other and engaging with opposite ends of said slit and also provided on its central part with a locking lip which is bent laterally relative to the tab and across the rear edge of said slit, and a retaining lug which is arranged on the rear edge of said slit and in a plane which is located between the plane of the tab and the plane of said locking lip, whereby the latter is prevented by said retaining lug from unfolding and the tab is prevented from being withdrawn from said slit.

2,458,636—Process for precipitating polymer from aqueous emulsion. Louis Plambeck, Jr., Wilmington, Del., assignor to E. I. du Pont de Nemours & Company, Wilmington, Del. Filed Feb 19, 1946—Issued Jan. 11, 1949.

Process for obtaining, in form suitable for isolation by filtration, a saturated addition polymer of a monomer composition wherein each monomer has but one aliphatic carbon-to-carbon unsaturation and that is ethylenic, which polymer, in the form of a molded bar 2.5 by 0.5 by 0.05 inch when rigidly clamped at one end, loaded with a 27.5 gram weight applied two inches from the point of support and in the plane of the 0.05 inch dimension, and heated in a liquid bath at the rate of two degrees centigrade per minute does not deform 0.06 inch below 60° C. and which polymer is precipitated from its aqueous emulsion in finely divided and difficulty filtrable form, which comprises adding to a completely polymerized aqueous emulsion of said polymer a water-insoluble, unpolymerizable, liquid organic swelling agent for said polymer, which swelling agent has a vapor pressure at 100° C. of at least 15 mm., in amount from 3 to 30% based on the weight of the polymer but less than that sufficient to cause coalescence of the polymer particles to a gummy mass, coagulating the aqueous polymer emulsion by the addition thereto of a water-soluble electrolyte and thereafter evaporatively removing the swelling agent.

2,458,992 — Pulverized fuel burner. Floyd T. Hague, Drexel Hill, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa. Filed June 6, 1946—Issued Jan. 11, 1949.

In a pulverized fuel burner, inner and outer concentrically-disposed annular casings defining therebetween an annular nozzle chamber, radial

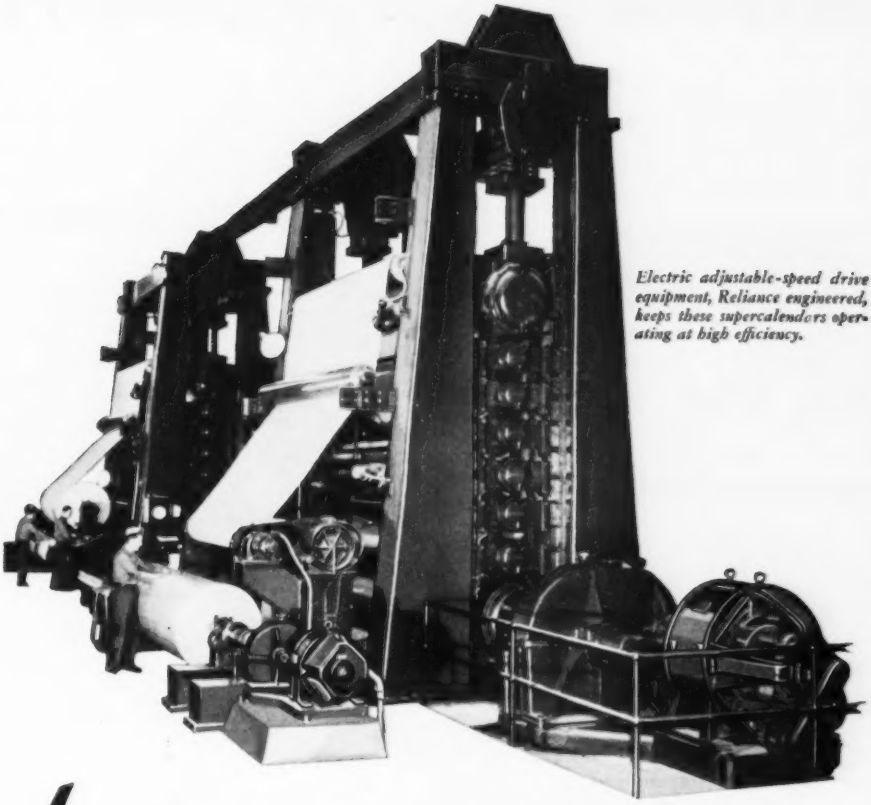


partitions separating said annular nozzle chamber into a plurality of nozzles, means for supplying airborne fuel to the space within the inner casing, means for supplying secondary air to certain of the nozzles, means for admitting airborne fuel from the interior of the inner casing to the other of the nozzles, and means preventing entry of secondary air to said other nozzles.

2,459,124—Manufacture of chlorine dioxide. George M. Booth, Westfield, N. J., assignor to Novadel-Agene Corporation, Belleville, N. J., a corporation of Delaware. Filed Oct. 20, 1947 — Issued Jan. 11, 1949.

A method of producing chlorine dioxide comprising reacting nitrogen trichloride with sodium chlorite.

A method of producing chlorine dioxide comprising passing successive quantities of gaseous nitrogen trichloride into contact with sodium chlorite to react therewith and removing from the reaction zone successively produced quantities of chlorine dioxide in gaseous form, while preventing accumulation of sodium hydroxide in the presence of the sodium chlorite, by maintaining the reaction zone substantially free of water which would enter the reaction to produce sodium hydroxide.



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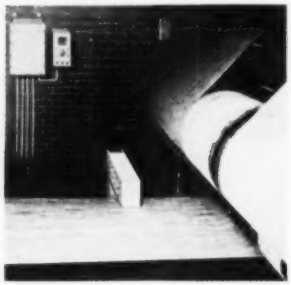
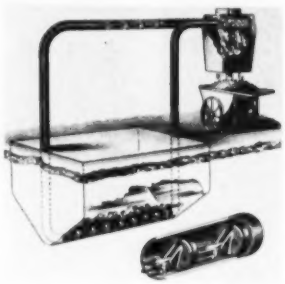
Beta-Ray Thickness Gage is designed to measure the thickness of sheet materials moving along a conveyor without contacting or disturbing the material. By measuring the amount of beta-ray absorption, the device indicates the mass per unit area of the material



under test. Equipment can be calibrated in terms of thickness to help operators maintain product uniformity, reduce the amount of rejected materials, and save on the amount of raw material used, it is stated. Marketed for applications in monitoring thickness of metal foils being rolled at high speeds, the gage also can be used with paper, plastics, textiles, rubber and other sheet materials, especially those which cannot be contacted because of their condition while in processing. Principle of operation: measures the deviation from a chosen setting by registering the amount of beta-rays (high-speed electrons emitted by certain radio-active substances) which material under test absorbs. Source of beta-rays in the gage is 2.5 millicuries of strontium 90, a radio-active isotope. Those rays unabsorbed by the material passing through the gaging head are gathered in an ionization chamber. An attenuated 90-cycle signal is added in phase opposition to cancel the signal from the ionization chamber. The attenuator voltage, therefore, is a measure of the ionization chamber voltage and of the amount of material in the beta-ray beam. Operating on a power supply of 100-125 volts, 60 cycles, ± 0.3 cycles, power consumption of gage is about 150 watts. Accuracy is ± 2 percent or better between normal periods of calibration, while drift is not more than 1 percent per hour after a 30 minute warm-up period. Under normal conditions, calibration need not be made oftener than once every four hours, it is said. For prices and details write General Electric Co., Schenectady 5, N.Y.

Houdaille Conveyor

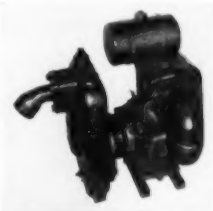
The Houdaille Conveyor is a continuous, automatic bulk materials transport adaptable to any problem of either production materials or waste products which have settling qualities. Consists of a series of neoprene or cast-iron flights assembled on an endless chain. Chains and flights are pulled through a pipe casing by means of a high-torque gear transmission. Preliminary survey of requirements is made to determine the most efficient layout for conveyor, and pipe system then built to specifications. Using hydraulic pipe-bending machines, engineers fabricate pipe to provide a continuous length of casing conforming to any desired traverse. Structural design is such that chain and flight movement is smooth. The casing, custom-bent to specifications of origin and delivery points, is of 2, 4, or 6-inch diameter, depending on the capacity requirements of installation. (Other sizes can be supplied as needed.) Through open section in casing at pick-up and release points, material to be transported is picked up from bottom of reservoir and carried to delivery point and released. Said to be adaptable for carrying raw materials of production: ceramic powders,



aggregates, refractory materials and cement. Also recommended by manufacturer for movement of pelleted materials in chemical plants, and for removal of sludge, scale and other contaminants. For details and prices write to Honan-Crane Corp., Lebanon, Ind.

Packaged Pump Unit

A self-priming pumping unit, designed for use where electric power or belting facilities are not available, has been announced. Known as Type LDA, the packaged unit consists of a self-



priming centrifugal pump close-coupled to an air-cooled gasoline engine. Double discharge volute is said to assure efficient priming; and a mechanical seal eliminate the conventional stuffing box and packing gland. Pump is equipped with an open-type impeller for dewatering service where some small solids may be encountered. Manufacturer recommends unit for any water application requiring capacities from 75 to 250 g.p.m. at a 100-foot head, and to be especially useful for flood protection during power failures. For details and prices write to Gardner-Denver Co., Quincy, Ill.

OBITUARIES

Harry E. Deardorff, 89, founder of the Union Paper Box Co., now Western Paper Products, Salt Lake City, Utah, died in Salt Lake hospital on June 1. Mr. Deardorff was recognized as Utah's oldest member of the B.P.O.E. Surviving him are his adopted son, Teddie; three grandchildren, six great-grandchildren, and two great-great-grandchildren.

Jacob A. Cohn, 64, owner of the Harding Paper Box Co., Washington, D.C., and for 37 years sales representative for the Climax Mfg. Co., Castorland, N.Y., died at Emergency hospital in Washington on June 8. Surviving are his widow, Mrs. Rebecca Cohn; two daughters, Mrs. Geraldine Stern and Mrs. Louise Hyman; and a son, Harold.

Jerome M. Sturm, vice-president and sales manager of the Diem & Wing Paper Co., Cincinnati, until his retirement on January 1, died in a local hospital on May 31. Surviving are his widow, Mrs. Amy Hoffheimer Sturm, and two brothers, Ned H. and Carl Sturm.

Joseph Francis McCarthy, 60, foreman at the International Paper Co. at Gatineau Mills for the past 20 years, and who joined the company at Three Rivers, Que., 27 years ago, died in an Ottawa hospital on June 5. He is survived by his widow, two sons and three daughters.

Donat Turpin, 38, on the staff of the Canadian International Paper Co. for the past 10 years, was drowned accidentally June 2 in the Long Sault Rapids, Ottawa River. He is survived by his widow and four young children.

William R. Gorman, works manager at the St. Regis Paper Co.'s machine and engineering division, Oswego, N.Y., died on June 10 at Oswego hospital following an operation.

TRAFFIC

Canadian Carloadings

OTTAWA—Car loadings of revenue freight of woodpulp and paper on the Canadian railways dropped to 3,661 cars in the week ended May 28 as compared with 3, 787 cars in the preceding week and 4,063 cars in the same week of last year.

The Eastern Division accounted for

3,249 cars in week ended May 28 as against 3,308 cars in the previous week and 3,597 cars in the similar week a year ago, with the Western Division showing 412 cars in the week ended May 28 against 479 cars in preceding week and 466 cars in the same week last year.

In the cumulative period from the beginning of 1949 until the week ending May 28, such car loadings dropped to a total of 87,555 cars this year compared with 93,263 cars last year in the similar period, with the Eastern Division declining to 76,535 cars this year as against 81,505 cars a year ago and the Western Division dropping to 11,020 cars this year as compared with 11,758 cars last year in the corresponding period.

Consolidated Frt. Classification

By Edwin Chester Hastings

Some of the paper and paper articles listed in the rail carriers' Consolidated Freight Classification have with the items the statement they can be shipped "in packages." A number of the articles have a package number. For example: Item 35480 Carbonized print paper, in packages 408 or 704. The classification has a separate package section where these numbers are listed with the requirements. Since the proper method is to list full information on the bill-of-lading, to avoid disputes about the description of articles and kind of package, the number of the latter should also appear on the contract. The practice of most reliable carriers is to place on the waybill all the important information derived from the bill-of-lading. If carbonized print paper is shipped in package 408 this means: In bundles, each ream wrapped in heavy paper, two or more reams held by wooden frames securely bound by metal strapping; or if the shipper prefers package 704, this means: In rolls completely wrapped with two thicknesses of heavy fibre board with outer covering of heavy kraft paper.

The use of package numbers saves the shipper's time by not having to write all that information on the bill of lading. The numbers are standard and apply on the lines of most all rail carriers.

A number of paper items are shipped in package 841. Some of these are—toilet paper, toilet seat covers, napkins, toweling, paper towels, paper dishes, paper or pulpboard cups (nested or folded flat), paper insert cup or dish for finger bowls, ice cream dishes, drinking cup or holders, manicure dishes, paper doilies, facial cleansing tissues, paper handkerchiefs, neck strips (for barber and beauty shops), paper table cloths.

Package 841 means the items are shipped in fibre boxes meeting the requirements of CFC's Rule 41. The boxes have to test not less than 200 pounds, except that dimensions must not exceed 90 united inches.

Paper or pulpboard cups, nested or folded flat in addition to package 841 are also shipped in package 961, and the latter means: In cartons, in double wall paper bags complying with CFC's Rule 40, Section 10 (c). To comply with Rule 40, the paper bags used as outer shipping containers must comply with the specifications listed in the Classification. In package 961 the basis weight of paper in each wall must be not less than 70 pounds. The gross weight of carton must not exceed 20 pounds. In the Classification "basis weight of paper" means the weight as produced by the paper machine, not including finish subsequently applied such as coating or printing.

Paper doilies, tissues, handkerchiefs, napkins, neck strips and table cloths which can be shipped in package 841 can also be shipped in package 215. The requirements for the latter are: When density of load does not exceed 16 pounds per cubic foot, articles may be in fibre boxes complying with requirements of CFC's Rule 41, boxes testing not less than 175 pounds, except that maximum dimensions must not exceed 90 united inches and gross weight must not exceed 75 pounds. Boxes when set up and conditioned for not less than three hours at 50 percent to 70 percent relative humidity and tested under standard compression, must have a resistance not less than 10 pounds per perimeter inch of the area under compression.

Blank paper cards can be shipped in package 750 and this means: Wrapped in not less than one thickness of single-faced corrugated board made of two sheets, basis weight not less than 70 pounds each and combined paper testing not less than 80 pounds. Cigarette papers, in books or wrappers, can be shipped in package 895 and this means: In fibre boxes made of double-faced corrugated fibre board, facings of which are fibreboard weighing not less than 33 pounds per 1,000 square feet, combined board testing not less than 175 pounds, dimension limit 50 united inches, gross weight not exceeding 42 pounds.

Felt paper insulating material can be shipped in package 498, and this means: In cartons, in fibre boxes testing not less than 200 pounds.

Package requirements change and new numbers with the information are made known in supplements to the classification. There have been twenty supplements issued to this tariff since it became effective on July 1, 1948. Supplement 20 will be effective on June 23rd. The changes effect both the paper mill and container maker. The reference is to increase or decrease of weight of material supplied to the maker for the construction of the containers. For example, note the different requirements on six-ply multiple wall paper bags.

Package 74 (Supplement 4) 6-ply multiple wall paper bags, total basis weight for all walls not less than 300 pounds, one-ply to consist of asphalt laminated sheet, net weight of contents not to exceed 50 pounds. This bag is built to convey confection icing powdered sugar. If used to convey other types of sugar, it may and may not get through, the chances are the heavier product (70-100 lbs.) will burst the bag.

Acceptance by the carrier isn't assurance to the shipper that damages will be paid in the latter improperly uses a container not built to carry excessive weight.

Package 76 (Supplement 17) 6-ply multiple wall paper bags, total basis weight for all walls not less than 330 pounds, consisting of 4 plies of kraft paper, basis weight 50 pounds each and one-ply kraft paper, wet strength 60 pounds, and one-ply kraft paper, wet strength 70 pounds. Net weight of contents not to exceed 50 pounds. This container is constructed to convey tanners' bate (an auto battery accessories product).

Package 78 (Supplement 20) 6-ply multiple wall paper bags, total basis weight for all walls not less than 330 pounds, two plies each consisting of two sheets of asphalt laminated paper, the combined sheet of the paper in each ply weighing not less than 60 pounds, basis weight. Net weight of contents not to exceed 100 pounds. This bag is constructed to protect a chemical, dry bisulphite sodium.

Package 79 (Supplement 20) 6-ply multiple paper bags complying with requirements of Rule 40, Section 10 (c), total basis weight for all walls not less than 290 pounds, net weight of contents not exceeding 120 pounds. This bag is constructed to protect in transit cassava, sago or tapioca flour.

Any paper container whose outer walls are constructed of the proper strength to bear reasonable punishment in transit must have the number of plies designated in the tariff. The items may have more walls than needed but this will increase the weight and also the freight charges.

While it is the direct concern of the container maker to follow specifications of Rules 40 and 41 in the requirements of the classification, the product must bear the "Maker's Certificate." This asserts the container has been subjected to lab tests and assures the user that his product will be protected in transit.

The paper mill has a major part in the triangle, indirectly to the user by supplying direct to the maker the material that is required in the construction of the containers. For this reason the mill should have exact knowledge of what the material will be used for. Strength is an important factor and if the product is known or some idea of distance in haul and final distribution points, these can be an important influence in material used.

A container constructed for one product or others of similar weight should be used for the lading it is

specifically designed to protect in transit. Trouble could be averted if shippers would avoid using a container not suited to their type of lading.

Bags or cartons that burst in transit and resulting in the loss of lading may not always be charged to rough handling while in the carrier's care. A container properly constructed with the material intended to support the correct gross weight in transit, that is, built to protect a certain commodity and used to haul other lading where the contents are over the bursting strength may result in damage. This will not be the fault of the paper mill, or the container maker, nor the carrier, but it is that of the user who failed to consider the importance of using the right protection to his lading.

The carriers require lading to be in "acceptable forms of shipment" (Rule 5 CFC). They will refuse to haul if the container appears unfit for transportation. They will accept articles, for which packing specifications are not provided, in "any form of shipment" provided the means used will protect the contents in transit. This condition also applies to paper items listed in the classification descriptions with the term "in packages" or "in package (number)" in any "acceptable form" unless otherwise specified in separate descriptions of articles. The "package" doesn't always have to be constructed as required in Rules 40 or 41, provided the container or form will render transportation safe and protect the contents.

IMPORTS

Week ending June 11

NEW YORK

Newsprint

R. A. Olsen, Kermie, Donnacona, 381 rolls
H. G. Craig Co., G.D.D., Donnacona, 357 rolls.
R. A. Olsen, G.T.D., Donnacona, 365 rolls.
N. Y. Journal American, Markland, Liverpool, N.S., 564 rolls.
N. Y. Herald Tribune, Markland, Liverpool, N.S., 1693 rolls.
N. Y. World Telegram, Markland, Liverpool, N.S., 649 rolls.
Brooklyn Eagle, Markland, Liverpool, N.S., 813 rolls.
Brooklyn Eagle Press, Inc., Markland, Liverpool, N.S., 78 rolls.
Richmond Newspapers, (Richmond, Va.), Markland, Liverpool, N.S., 1543 rolls.
Madden Reeve Angel & Co., Inc., Mormacmail, Kotka, 1128 rolls.
Jay Madden Corp., Mormacmail, Kotka, 110 rolls, 20 bls.

Cigarette Paper

Suarez & Crespo, Exanthia, Alicante, 5 cs.

Wrapping Paper

Jay Madden Corp., Mormacmail, Stockholm, 652 rolls.

Paperhangings

C. A. Haynes & Co., American Inventor, London, 15 bls., 2 cs.

Wallpaper

Madden Reeve Angel & Co., Inc., Mormacmail, Kotka, 3 rolls.
Taub Hummel & Schnall, Grete Maersk, Kobe, 8 cs. (grass cloth).
Meadows Wye & Co., Queen Mary, Southampton, 1 cs.
Lep Transport, Queen Mary, Southampton, 1 cs.
R. E. Thibaut, American Builder, Manchester, 39 ctns.

Insulating Paper

Stevens Nelson Paper Corp., Grete Maersk, Kobe, 13 cs.

Tissue Paper

Paper Converting Co., Parthia, Liverpool, 4 rolls.

Gummed Paper

B. F. Drakenfeld & Co., Parthia, Liverpool, 47 cs.
B. F. Drakenfeld & Co., American Builder, Liverpool, 47 cs.

Tracing Cloth

E. Dietzgen & Co., Parthia, Liverpool, 14 cs. (bleached cotton).
Keuffel & Esser Co., American Builder, Manchester, 44 cs. (bleached cotton).

Stencil Paper

J. E. Bernard & Co., Hastings, Bremen, 5 cs.

Boxboard

Jay Madden Corp., Mormacmail, Stockholm, 89 rolls (folding).

Paper Napkins

H. W. Robinson & Co., Ratory, Copenhagen, 40 ctns.
H. W. Robinson & Co., American Inventor, 2 cs.

Paper Serviettes

A. C. O. Leather Goods Co., Marine Tiger, Hamburg, 50 bls.
(———), Parthia, Liverpool, 13 cs.
A.C.O. Leather Goods Co., American Inventor, London, 23 cs.

Transparent Paper

M. J. Corbett & Co., Arkeldyk, Rotterdam, 9 cs.

Photo Paper

Alco Photo Supply Co., American Inventor, London, 17 cs.
Lep Transport, American Inventor, London, 50 drums (base).

Filter Paper

H. Reeve Angel & Co., Inc., American Inventor, London, 25 cs.
Stevens Nelson Paper Corp., American Inventor, London, 1 cs.

Drawing Paper

H. Reeve Angel & Co., Inc., American Inventor, London, 2 cs.

Printing Paper

Stevens Nelson Paper Corp., American Inventor, London, 3 cs.
Oxford University Press, American Builder, Liverpool, 7 cs.

Paper Towels

H. W. Robinson & Co., American Inventor, London, 3 cs.

Writing Paper & Envelopes

H. W. Robinson & Co., American Inventor, London, 3 cs.

Rags, Baggings, etc.

A. de Vries Trading Co., Jessie Maersk, Rouen, 21 bls. rags.
Shiro Trading Corp., Grete Maersk, Shanghai, 42 bls. cotton waste.
C. Comiter, Grete Maersk, Shanghai, 100 bls. cotton waste.
(———), Parthia, Liverpool, 76 bls. wooden rags, 15 bls. woolen clips, 11 bls. wool thread-waste.
American Express Co., Parthia, Liverpool, 80 bls. wool rags, 34 bls. thread waste.
J. P. Fleisig & Co., Arkeldyk, Rotterdam, 92 bls. old jute rags.
Guaranty Trust Co., Arkeldyk, Antwerp, 66 bls. old rags.
China Trade & Industrial Service, Flying Independent, Shanghai, 450 bls. cotton waste.
Castle & Overton, Inc., Harpalcus, Bombay, 140 bls. old jute rags.
(———), Harpalcus, Bombay, 65 bls. scrap jute strings.
C. Comiter, Harpalcus, Bombay, 200 bls. cotton waste.
(———), American Builder, Dublin, 134 bls. old jute bagging.
Chase National Bank, American Builder, Manchester, 79 bls. cotton tares & bagging.
Riegel Paper Corp., American Builder, Manchester, 87 bls. scrap bagging.
Atlas Fiber Co., American Builder, Liverpool, 8 bls. woolen rags.
A. de Vries Trading Corp., Knut Bakke, Antwerp, 62 bls. rags.
J. J. Rozendaal, Knut Bakke, Antwerp, 97 bls. cotton waste.

Gluestock

Trust Co. of North America, Agwiking, Havana, 73 bls.

Casein

(———), Mormacsaga, Buenos Aires, 500 rags.

Woodpulp

Pulp Sales Corp., Mormacmail, Stockholm, 1 case, (samples).

Woodflour

The Burnet Co., Mormacmail, Kotka, 1 bag.

PHILADELPHIA

Jay Madden Corp., Mormacmail, Helsingfors, 28 rolls wrapping paper.
Pulp Sales Corp., Mormacmail, Kotka, 1270 bls. white dry mechanically ground wood pulp, 1090 bls. prime unbleached extra strong sulphate pulp.
Madden Reeve Angel & Co., Inc., Mormacmail, Kotka, 1590 rolls newsprint.
H. J. Baker, Mormacsaga, Buenos Aires, 101 bls. gluestock.
Fulton Weeks Corp., Mormacsaga, Rio de Janeiro, 153 bls. gluestock.
Leigh Textile Co., American Builder, Manchester, 42 bls. bagging.

BALTIMORE

Pulp Sales Corp., Mormacmail, Kotka, 762 bls. white dry mechanically ground woodpulp.
E. J. Keller Co., Inc., Knut Bakke, Antwerp, 219 bls. paper stock.

NORFOLK

Loumar Textile By Products, Edam, Antwerp, 113 bls. jute waste.
Castle & Overton, Inc., Harpalycus, Bombay, 80 bls. old jute rags.
New England Waste Co., Harpalycus, Bombay, 100 bls. old hessian rags.
Leigh Textile Co., American Builder, Manchester, 44 bls. bagging.
Loumar Textile By Products, American Builder, Manchester, 90 bls. bagging.

HOUSTON

Maddden Reeve Angel & Co., Inc., Tennesse, Kotka, 838 rolls newsprint.
Jacksonville Paper Co., Tennessee, Kotka, 266 rolls, 11 bls. newsprint.

TAMPA

Madden Reeve Angel & Co., Inc., Tennessee, Kotka, 942 rolls, 52 bls. newsprint.

NEW ORLEANS

Madden Reeve Angel & Co., Inc., Tennessee, Kotka, 626 rolls newsprint.

HOW TO UNLOAD A BOX CAR *FAST*

SALT CAKE
LIMESTONE
ALUM
CLAY
SODA • ASH
STARCH
ROSIN
BALES
SULPHUR
WASTE
BARRELS
FILLERS
SNOW

The processing of pulp, paper and paper products involves the varied handling of many different types of bulk materials. These must be unloaded, transported, stored, lifted, dumped and loaded—and the operations re-occur over and over again! The unloading of box cars is *just one* of the vital functions which require special handling techniques. The Model HA PAYLOADER was designed primarily to handle bulk materials under the exact conditions found in pulp and paper processing plants. Its greater horsepower has meant full loads on every trip regardless of the materials handled. Its rear-wheel steering has meant quick turning inside box cars and within narrow aisles. Its large pneumatic tires and unusual visibility has resulted in greater speed combined with greater safety. That's why Model HA Payloaders unload box cars at rates up to 50 tons per hour under certain material and distance conditions. Hundreds of manufacturing plants are solving their normal loose-material handling problems with PAYLOADERS, also using them for *extra* jobs such as snow removal, yard and floor clean-up, dump leveling and grading. It will pay you to get *all* the facts about the all-around performance of the PAYLOADER line — facts based on 28 years of materials handling experience. The Frank G. Hough Co., 747 Sunnyside Avenue, Libertyville, Illinois.

SEND FOR LITERATURE on the 10½ cu. ft. Model HA Payloader, the ¾ yd. Model HF, the 1¼ yd. Model HL or the 1½ yd. Model HM — also the 2 yd. Payloader Buggy.

SAY "HUFF"

HOUGH
PAYLOADER
Manufactured by THE FRANK G. HOUGH CO.

PRICES

The prices below reflect general market quotations applying to those standard grades in which the heavy volume of business is being done.

NEW YORK

Delivered New York

Standard News, per ton—

Rolls, contract	$100.00/	—
Sheets	115.00/	—

F.o.b. Mill, Varying Freight Allowances

Kraft— per cwt., 40# base wgt.

Standard Wrapping Rolls	$6.25/$6.75
No. 1 Wrapping Rolls	7.00/ 7.50
Standard Bag	5.75/ 6.25

Tissues— per ream 24x36 (480) 10/11 lbs. 2500 lbs. or more

Wh. No. 1 Frd.	$1.60	/$1.62½
Wh. No. 1 M. G.	1.50	/ 1.60
Wh. No. 1½ M. G.	1.40	/ —
Wh. No. 2	1.20	/ 1.25
Kraft Anti-Tar	1.50	/ 1.52½
Kraft Unbl.	—	/ —
Shrd. Wh. No. 1 per lb.	.11½/	—

Toilet— per case of 100 rolls—1 M sheets.

Unbleached 4½x4½	$5.75/	—
Bleached 4½x4½	6.95/	—
Bleached 4½x5	8.80/	—
Per Case of 50 rolls—2000 sheets		
Unbleached 4½x4½	$5.75/	—
Bleached 4½x4½	6.80/	—
Per Case of 100 rolls—1000 sheets		
Facial, 4½ x 5, 2 ply	$8.95/$9.45	

Paper Towels—per case of 3750—Zone 1.

Wh. Jr. M'tif'd 9¼x9½	$5.25
Br. Sr. M'tif'd 10x12	3.60
Br. Jr. M'tif'd 9½x9¾	3.10
Br. Jr. Sgl. fold 10x10¼	3.15
Bkbd. 7½ x 11, 24/25 rolls	$3.95/$6.25

Manila, per cwt.

No. 1 Jute Tag, sheets*	$15.05/	—
Reg. Jute M.F. Manila, sheets*	13.50/	15.50
No. 1 Manila Wrapping	8.75/	10.50
Printing Manila	10.00/	11.00

* Less usual allowance for rolls.

Boards, per ton—

Filled News	$70.00/$72.50	
Plain Chip	70.00/	—
Bkbd. Mis. L-d. Chip*	97.50/	—
White Pat. coated*	115.00/	
Kraft Liners 42 lb.	100.00/	
Kraft Corr. .009	105.00/	
Binders Boards	110.00/116.00	

* Base Prices per 10 tons. Less than 10 ton but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1:

Rag Content Bonds and Ledgers—
White, 20 lb.

Bonds

	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$51.40/$53.90
100% Rag	44.55/ 46.15
75% Rag	33.90/ 35.40
50% Rag	28.10/ 29.55
25% Rag	24.85/ 26.80

Ledgers

	4 Ctns.
	per cwt.
100% Rag Ex. No. 1	$52.65/$54.55
100% Rag	45.65/ 46.40
75% Rag	35.15/ 36.10
50% Rag	29.40/ 30.05
25% Rag	26.15/ 26.80

Sulphite Bonds and Ledgers
White, 20 lb.

Bonds

	4 Ctns.
	per cwt.
No. 1	$17.50/ —
No. 2	16.65/ 16.75
No. 4	15.60/ 15.95

Ledgers

	4 Ctns.
	per cwt.
No. 1	$18.80/ —
No. 2	18.05/ —

White Book

Conversion Coated	Case
	per cwt.
No. 1	$20.75/$20.90
No. 2	19.50/ 19.65
No. 3	18.15/ 18.90
Machine Coated	
No. 1	16.40/ 16.65
No. 2	14.90/ 15.15
Uncoated	
No. 1 Antique (Watermarked)	16.40/ 17.90
Offset	15.15/ 16.65
A Grade E. F.	15.40/ —
A Grade S. C.	15.90/ 16.15
B Grade E. F.	14.90/ 15.15
B Grade S. C.	15.40/ 15.65

WORLD WOOD PULP MARKETS

Second Quarter Contract Prices, Per Short Air-Dry Ton

	Delivered, with varying freight allowances		On dock Atlantic Ports Varying freight allowances		
	U. S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$65.00/ —	$65.00/ —			
Soda, Bleached	120.00/ —	120.00/ —		Competitive	
Sulphate, Bleached	128.00/136.00	130.00/136.00	130.00/136.00		
Sulphate, Unbl'd North'n	— / —	94.00/ 95.00	105.00/112.50	with	
Sulphate, Unbl'd South'n	77.50/ 85.00				
Sulphite Blchd. (S'ftw'd)	126.00/ —	130.00/135.00	130.00/132.50	Canadian	125.00/ —
Sulphite, Blchd. (H'dw'd)	125.00/ —				
Sulphite, Unbleached	115.00/ —	118.00/ —	110.00/118.00	Grades	
Sulphite, Unbl'd (Glassine)	121.50/ —	122.00/ —	122.00/127.50		

WASTE PAPER MARKET

Prices to Mills. Quotations Nominal
F.O.B. Shipping Point (Per Ton)

	New York June 2	Philadelphia June 6	Boston June 11	Chicago June 6
No. 1 Mixed Paper	$4.00/ $5.00	$2.00/ $3.00	$4.00/ $6.00	$5.00/ —
Boxboard Cuts	6.00/ 7.00	3.00/ 4.00	— / 5.00	8.00/ —
Mill Wrappers	12.00/ 14.00	8.00/ 10.00	— / 9.00	7.00/ —
No. 1 News	7.00/ 8.00	5.00/ 7.00	— / 9.00	11.00/ —
Over-issue News	15.00/ 16.00	10.00/ 12.00	8.00/ 10.50	14.00/ —
Corrugated Containers	7.00/ 9.00	7.00/ 8.00	8.00/ 10.50	12.00/ —
New Corrugated Cuts	15.00/ 16.00	18.00/ 20.00	16.00/ —	15.00/ —
Double Kraft Ld. Corr. Cuts	22.50/ 25.00	25.00/ 30.00	25.00/ —	30.00/ —
Used Kraft Bags	25.00/ —	15.00/ 17.00	25.00/ 30.00	20.00/ —
No. 1 Brown Kraft Paper	nominal	20.00/ —	25.00/ —	15.00/ —
Super Resorted Br. Kraft	25.00/ 30.00	30.00/ —	40.00/ —	30.00/ —
New Br. Kraft Env. Cuts	60.00/ 65.00	60.00/ 65.00	60.00/ 65.00	50.00/ —
New Br. Kraft Cuts	40.00/ 45.00	55.00/ —	45.00/ —	50.00/ —
No. 1 Gdwd. Shvs.	20.00/ 25.00	12.00/ 15.00	25.00/ —	21.00/ —
White Newsblanks	45.00/ 55.00	60.00/ 65.00	/ 50.00	30.00/ —
No. 1 Flyleaf Shvs.	25.00/ 30.00	15.00/ 20.00	35.00/ 40.00	30.00/ —
No. 1 Soft Wht. Shvs.	65.00/ 70.00	60.00/ 65.00	70.00/ 80.00	55.00/ —
Super Soft Wht. Shvs.	85.00/ 90.00	65.00/ 70.00	80.00/100.00	65.00/ —
Hd. Wht. Shvs.	80.00/ 85.00	70.00/ 75.00	80.00/ —	80.00/ —
Hd. Wht. Env. Cuts.	95.00/100.00	90.00/ 95.00	90.00/105.00	90.00/ —
New Manila Env. Cuts.	60.00/ 70.00	60.00/ 65.00	60.00/ 70.00	55.00/ —
Col. Tab Cards	25.00/ 30.00	25.00/ 30.00	— / —	30.00/ —
Manila Tab Cards	60.00/ 65.00	55.00/ 60.00	65.00/ 75.00	50.00/ —
No. 1 Mixed Ledger	27.50/ 30.00	20.00/ —	37.50/ —	30.00/ —
White Ledger	35.00/ 40.00	30.00/ 32.50	45.00/ 50.00	40.00/ —
Mixed Books & Mags.	7.00/ 8.00	4.00/ 5.00	12.00/ —	5.00/ —
No. 1 Rep'd Hvy. Books & Mags.	15.00/ 17.00	8.00/ 10.00	22.00/ 23.00	20.00/ —

Twines
All Prices Nominal, F.o.b. Mill

(Soft Fiber)		
Coarse Polished—India	.35½/	.36½
Fine Polished India	.41½/	.45
Unpolished—Paper Makers	.32½/	.34½
Tube Rope	.33¾/	.35½
Wrapping	.36 /	.38½
Cotton	.58 /	.60
Polished Cotton	.55 /	—
(Hard Fiber)		
Mex. Sisal	.21 /	.23
(American Hemp)		
Polished Hemp	.45 /	.48
Unpolished	.35 /	.37½

Rag Market

New Domestic Cotton Cuttings
(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
White Shirt	$10.00/	$10.50
Unbleached Muslin	10.00/	10.50
Light Silesias	7.00/	7.50
White Back Blue Overalls	6.25/	6.50
Blue Overalls	6.00/	6.25
Fancy Shirt	4.50/	5.00
Percales	5.50/	6.00
Light Prints	5.50/	6.00
No. 1 Washables	2.75/	3.00
Bleachable Khaki	5.00/	5.50
Unbleachable Khaki	4.50/	5.00
Cottonades	4.25/	4.75
Lt. Flannelettes	7.00/	7.50
Men's Corduroy	3.50/	4.00
Women's Corduroy	3.00/	3.50

Old Domestic Cotton Rags
(Prices to Dealers, F.o.b. Ship. Pt.)

	Per 100 lbs.	
No. 1 Whites, Repacked	$4.25/	$4.75
No. 1 Whites, Miscellaneous	3.50/	4.00
No. 2 Whites, Repacked	2.75/	3.00

No. 2 Whites, Miscellaneous	**2.00/**	**2.25**
Cotton Pants & Overalls	2.50/	2.75
Thirds and Blues, Repacked	2.00/	2.25
No. 1 Roofing Rags	1.25/	1.35
No. 2 Roofing Rags	1.00/	1.20
No. 3 Jute Bagging	**.95/**	**1.05**
No. 4 Brussels & brd. Bck'd crpts.	**.90/**	**1.00**
Roofing Bagging	**.80/**	**.95**

New Foreign Cotton Cuttings
(Prices to Dealer, F.o.b. Dock, N. Y.)

Per 100 lbs.

New Dark Cuttings
New Mixed Cuttings
Light Silesias — prices
Light Flannelettes
New White Cuttings — are
New Unbleached Cuttings
Fancy Shirt Cuttings — nominal
Light Prints
Bleachable Khaki, No. 1
Unbl. Khaki, No. 1

Old Foreign Rags
(Prices to Dealer, F.o.b. Dock, N. Y.)

Per 100 lbs.

No. 1 White Cottons
No. 2 White Cottons
No. 3 White Cottons
No. 4 White Cottons — prices
Extra Light Prints
Old Light Prints
Med. Light Prints — are
Dutch Blue Cottons
Checks and Blues
Linsey Garments — nominal
Dark Cottons, European
Dark Cottons, Egyptian
Old Shopperies
New Shopperies

Bagging
(Prices to Dealers, f.o.b. N. Y.)

	Per 100 lbs.	
Foreign Gunny, No. 1	**$7.50/**	**$8.00**
Domestic Gunny, No. 1	7.50/	8.00
Heavy Wool Tares	6.50/	7.00
No. 1 Scrap Bagging	**4.75/**	**5.00**
Foreign Manila Rope	**5.50/**	**5.75**
Domestic Manila Rope	**5.50/**	**5.75**
Jute Strings	**6.25/**	**6.50**
No. 1 Sisal Strings	5.00/	5.25
Mixed Strings	**1.15/**	**1.30**

PHILADELPHIA

Domestic Rags (new)
(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
White Shirt	**$10.25/**	**$10.50**
Fancy Shirts	5.00/	5.25
Light Silesias	**6.75/**	**7.00**
Unbleached Muslin	**10.00/**	**10.25**
Light Prints	**5.25/**	**5.50**
Washable No. 1	2.75/	3.25
Blue Overall	**6.00/**	**6.25**
Percales	**5.50/**	**5.75**
Unbleachable Khaki	3.50	4.00
Bleachable Khaki	4.50/	5.00
Men's Corduroy	3.75/	4.25
Ladies' Corduroy	3.25/	3.75
Cottonades	3.75/	4.00

Domestic Rags (old)
(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
Mixed White	$3.00/	$3.50
Thirds and Whites Repacked	2.40/	2.50
Cotton Pants & Overalls	2.75/	3.00
No. 1 Roofing Stock	1.05/	1.15
No. 2 Roofing Stock	.95/	1.05
Roofing Bagging	.75/	.90

Bagging
(F.o.b. Eastern Shipping Point)

	Per 100 lbs.	
Old Manila Rope	$5.50/	—
Foreign Gunny No. 1	**8.00/**	**—**
Domestic Gunny No. 1	**8.00/**	**—**
Sisal Strings No. 1	8.50	—
No. 1 Scrap	4.50/	5.00
No. 1 Jute Rope	6.00/	—

BOSTON

Bagging
(F.o.b. Boston)

	Per 100 lbs.	
Foreign Gunny	7.50 /	8.00
Domestic Gunny	8.00 /	8.50
Domestic No. 1 Old Rope	6.00 /	6.25
Foreign No. 1 Old Rope	**6.50 /**	**—**
Mixed Strings	1.35 /	—
Transmission Rope—Domestic	**3.00 /**	**3.50**
Jute Carpet Threads	— /	4.00
Bleachery Burlap	— /	9.00
Scrap Burlap—		
Foreign	6.00 /	6.50
Domestic	6.00 /	6.50
South America	6.00 /	6.50
Austr. Wool Pouches	**8.25 /**	**—**
New Zealand Wool Pouches	**— /**	**6.00**
New Burlap Cuttings	**8.50 /**	**—**
Heavy Baling Bagging	7.50 /	8.00
Paper Mill Bagging	— /	5.00

Domestic Rags (new)
(F.o.b. Boston)

	Per 100 lbs.	
New Light Prints	5.75 /	6.00
Fancy Percales	6.00 /	6.25
White No. 1 Shirt	10.00 /	10.75
Light Flannelettes	**— /**	**7.00**
Canton Flannels, Bleached	**— /**	**9.00**
Underwear Cutters, Bleached	10.75 /	11.00
Underwear Cutters, Unbleached	10.00 /	10.25
Blue Overalls	6.25 /	6.75
Soft Unbleached	10.00 /	10.75
Blue Cheviots	6.00 /	6.75
Fancy Shirt	4.00 /	4.50
Washable	3.25 /	3.50
Khaki Cuttings	5.00 /	5.25
Men's Corduroy	4.50 /	—
Khaki Canvas	— /	5.50
B. V. D. Cuttings	10.00 /	10.25

Domestic Rags (old)
(F.o.b. Boston)

	Per 100 lbs.	
No. 1 Whites, Repacked	$3.50 /	$4.00
No. 1 Whites, Miscellaneous	3.00 /	3.50
Twos and Blues, Repacked	— /	2.00
Cotton Pants & Overalls	2.50 /	2.75
No. 1 Roofing Stock	— /	1.20
No. 2 Roofing Stock	— /	1.10
Roofing Bagging	— /	.90

MARKETS . . . . .

Blanc Fixe

Prices firm. Supply ample. Currently quoted at $85.00 in bags, car lots, at works, 6 cents per pound, l.c.l., deld. By-product supply somewhat restricted. Quoted at $77.50 per ton, car lots, at works, 6 cents per pound, l.c.l., deld.

Bleaching Powder

Demand and prices steady. Steady improvement in supply. Prices range from $4.25 to $4.75 per 100 pound drums, l.c.l., works.

Casein

Prices nominal. Market inactive. Buying dull. Current prices on processed acid precipitated casein at 19 to 21 cents per pound for domestic grades and 18½ to 19 cents for imported grades, f.o.b. shipping point, car lots.

Caustic Soda

Carload prices firm. Supplies available for prompt shipment. L.c.l. sales reported at competitive levels. Solid caustic is reported at $3.05 per cwt. flaked and ground is quoted at $3.45 per cwt., in 400 pound drums, $3.95 per cwt. in 100 pound drums—car lots at works; liquid 50 percent in tank cars at $2.40 per cwt.; liquid 73 per cent in tank cars at $2.50 per cwt., at works.

China Clay

Prices firm. Demand easier, supply of domestic and imported ample. Domestic filler quoted at $10 to $12.50 per ton, car lots, f.o.b. mines. Coating clay is $15 to $25. Imported clay quotation, short tons, $16 to $35, export warehouse.

Chlorine

Prices firm. Supply condition favorable. Demand moderately strong. Currently quoted at $2.40 per cwt. in single unit tank cars; at $2.70 to $3.90 per cwt. in multi-tank cars, f.o.b., works.

Rosin

Moderate trading and steady flow into loan reported. Price stronger. Active export inquiry noted. Gum rosin in drums per 100 pounds net in car lots, f.o.b. Savannah, B, $5.75; G, H, I, K, $6.40, Savannah; B, $4.25; FF, $5.50.

Rosin Size

Supply good. Demand steady. Seventy percent gum and pale wood grades, tank cars, $5.45 to $5.55 f.o.b. southern shipping point.

Salt Cake

Demand moderate. Price steady. Domestic quoted at $24.00/$25.75, f.o.b. shipping point, freight allowed to destination.

Soda Ash

In free supply. Demand easier. Carload prices firm. Some competitive cutting noted in l.c.l. lots. **Current prices, car lots per 100 pounds; in bulk, $1.15; in paper bags, $1.40; and in barrels, $1.90.**

Starch, Corn

Demand fair. Supply ample. Pearl grade currently quoted at $4.82 per 100 pounds; powdered starch at $4.93 per 100 pounds; car lots, f.o.b. Chicago.

Starch, Potato

Paper mill demand slightly easier. Idaho quantities limited to warehouse. High grade quoted at $7.00 cwt., l.c.l., ex. N. Y. whse. Large Maine supply quoted $4.75 f.o.b. Maine warehouse; pearl grade, $4.60 cwt. f.o.b. Maine.

Sulphate of Alumina

Prices firm. Supply good. Demand steady. The commercial grades are quoted from $1.50 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is $2.50 per 100 pounds in bags, car lots, at works.

Sulphur

Prices firm. Demand sustained at good level. Supply good. Annual contracts are quoted at $18 per long ton, f.o.b. mines; $19.50, f.o.b. vessels, Gulf ports. Export price f.o.b. Gulf ports is $22.00 per long ton.

Talc

Prices steady. Demand continues ahead of supply. Domestic grades are currently quoted at $23 per ton in paper sacks, f.o.b. mills; Canadian at $35 and up per ton. All prices in car lots.

Tapioca Flour

Supplies tight on all grades. First indications of Brazilian new crop coming in. Price looks slightly easier. Inquiry good. Superior high range from $10.50/$11.50 cwt.; high grades $9.50 cwt., on dock Atlantic and Gulf ports; medium grades range from $6.65/$7.50 cwt. on dock, N. Y.

Titanium Dioxide

Prices firm. Supply reported now in balance with eased demand. Anastase 19½c pound carload lots, 20c l.c.l., rutile, 21½c pound carload lots, 22½c l.c.l.; 50-pound bags, f.o.b. plant, actual freight allowed.

The Paper Market

Report Prepared by the Paper Committee of the National Ass'n. of Purchasing Agents, under the supervision of Chairman T. A. Corcoran, Courier-Journal and Louisville Times Co., Louisville, Ky.

The production ratio report of the American Paper and Pulp Ass'n. continues to indicate a supply in excess of demand. The latest figure is for the week ending May 7, when production was only 83.8 percent of capacity. This compares with 102.4 percent for the corresponding week of 1948.

Newsprint manufacturers, alone, continue at capacity production, as newspapers continue to carry a record-breaking amount of advertising.

WOOD PULP—By H. L. Weber, *Fibreboard Products Co., Inc., San Francisco, Calif.*

There has been no material change in the pulp situation since our last report.

Production and consumption of pulps appear to be down somewhat from a month ago.

Inventories have remained about the same.

Bleached pulp prices are remaining relatively firm, but some weakness has

occurred in the unbleached pulp prices.

There is more indication now that the Scandinavian pulp prices will be in line with the domestic pulps by the time we get into the third-quarter shipping period. None of these changes is drastic but, with ample supplies and slightly curtailed demand, some weakness is bound to appear in the price picture.

KRAFT PAPER—*By T. H. Treadwell, W. C. Ritchie & Co., Chicago, Ill.*

A month ago, we reported a weakened market on kraft paper, with some mills offering concession of 5 percent. This price reduction is now general, with still further concessions made by mills on miscellaneous accumulations, side trim, etc. With a recent price reduction of around $10 a ton on unbleached sulphate pulp, it appears quite possible there will be a further decline in the price of kraft paper.

Quality has improved and very prompt delivery is obtainable.

FINE PAPERS—*By E. E. McCulley, Courier-Journal Job Printing Co., Louisville, Ky.*

The market continues on the soft side in both rag and sulphite grades of bond paper. The recent reductions in price on the sulphite grades have restored part of the normal differential between 25 percent rag and No. 1 sulphite, but not all of it.

Sulphite still is at a disadvantage in this spread and also in respect to the lightweight penalty on 16 lb. basis. The rag mills no longer charge this penalty, but the sulphite mills are holding on to it.

Until the proper spread in price between 25 percent rag and No. 1 sulphite is reached and until the lightweight penalty on the 16 lb. basis is eliminated, increasing pressure pricewise will be felt by sulphite bonds and, with demand at its present level, it is doubtful that sulphite can continue to resist these corrective reductions.

BOOK PAPER—*By Ralph N. Betts, American Education Press, Inc., Columbus, Ohio.*

Raw material prices, particularly scrap paper, continue to drop in price. In some areas, waste collections have ceased entirely.

All book grades continue to be readily available. In many cases, machine finish, English finish, and supers can be obtained in standard weights in two weeks' time.

Of tremendous interest to the book paper buyer, is the recently announced new coating process involving Ion Exchange. The new coating is said to give excellent printing results up to 150-line screen and it is thought that production will be even cheaper than present machine coating methods.

NEWSPRINT—*By T. A. Corcoran.*

Everyone is price conscious now and this includes newspaper publishers. After seeing prices of many commodities decline, which had been very firm only a few months ago, publishers naturally look hopefully at newsprint prices, which constitute one of their largest items of expense.

Newsprint manufacturers are probably in position to make a reduction whenever they consider it necessary. This is indicated by the first-quarter report of one of the large American mills which shows a net profit 56 percent higher than the first quarter of 1948. However, producers are not likely to consider a reduction necessary as long as demand continues on the present high plane. Newspaper advertising linage was 3 percent higher in the first quarter than in the same period of 1948.

Consumption by all U. S. users, in April, amounted to 467,019 tons, an increase of 6.3 percent over April, 1948. For four months, the increase is 6.1 percent.

Supply available to U. S. users, in April, added up to 472,981 tons, up 7 percent from April last year. For four months, the increase is 9.1 percent over last year.

Total U. S. *stocks*, which include Canadian and U. S. mills as well as users' inventories, climbed 20,940 tons during April, to 886,837 tons. This represents an increase of 196,269 tons over April 30, 1948. Daily newspapers reporting to the A.N.P.A. had a 45-day supply on hand at the end of April, compared to 44 days a month earlier, 34 days a year ago, and 31 days April 30, 1947.

BOXBOARD—*By Stuart Edgerton, United States Rubber Co., New York City.*

The consensus for this month is that plenty of board is available for all needs. Production seems to be running about 80 percent or very little better, of normal running time, and producers are, apparently, working on a very short backlog of orders, as very fast delivery is obtainable.

The demand is only fair for buyers wishing to keep inventories at a very low figure. Quality of board being delivered is excellent and there would be no reason to accept any quality lower than requirements specify.

Prices are on the weak side and, even though the base has been reduced since the last report, prices may be trimmed on orders of considerable tonnage.

PAPER CONTAINERS—*By Lee R. Forker, Quaker Stock Oil Ref'g. Corp., Oil City, Pa.*

There is nothing particularly new to report since the report of thirty days ago, which indicated that paper containers of all types were readily available, with improved quality and with some price reductions for certain specifications.

It is reported that, in some cases, inventories now are being increased for the food pack which has begun, or will increase rather sharply within the next few weeks.

Export specifications are being carefully reviewed and several paper box manufacturers now are offering export packages in "V3C" and "VUS" specifications.

It seems that, with lower requirements for most types of paper containers, an adequate supply will be available for the immediate future even though it is expected that demand will increase substantially for the balance of the second quarter and for the early part of the third quarter, as compared with shipments actually made during the early part of this year.

WEST COAST CONDITIONS—*By Horace Duckenfield, Metropolitan Life Insurance Co., San Francisco, Calif.*

There is some little confusion in the industry in Northern California, due to the possibility of warehouse labor trouble in the San Francisco Bay district.

Reports from various sources indicate that, during the last month, demand has been somewhat quiet and supply has been fairly good. It seems the mills are in a good position to make shipments much more promptly than for the past several years. This statement may be applied to practically all grades of paper in use in this territory.

The present ratio of supply to demand, for wrapping paper and cartons, is perhaps better than the balance of the industry.

CANADIAN CONDITIONS—*By J. F. Stephenson, Kraft Containers, Ltd., Hamilton, Canada.*

There is very little change in the paper position over the previous report. Only newsprint is running full production, in trying to keep up with demand. Fine papers and kraft have pretty well caught up with requirements, with a few mills operating at reduced capacity.

Over the past seven or eight years, mills have been working at top speeds getting out as much production as possible on regular stocks. The situation today is that new colors, finishes and experiments are being made on all kinds of stock where, formerly, no time was available. The result will be that quality will be improved and many more users will be found to endeavor to keep up the tonnage required to allow the mills to work nearer their capacity.

It must always be remembered that, in the war years, new gadgets and equipment were installed which increased the mills' production capacity. The output today is far in excess of what they could do in 1939 but it is still far below their present increased capacity.

Prices look quite settled, without very much chance of reduction for the remainder of this year, but each buyer must keep close watch of his own local condition.

Tricycle built for "woo"....

The Bettmann Archive

Many a proposal was made on a "gay nineties" tricycle. And in that same era—almost a half-century ago—the founders of Niagara Alkali began the first of a long series of important proposals for pioneering and developing the electro-chemicals industry in America.

Something to remember is that this vital pioneering activity that has gone on through the years has given Niagara advanced knowledge and experience that can be of constant benefit to you in the use of Niagara Caustic Soda, Caustic Potash, Carbonate of Potash, EBG Liquid Chlorine, Paradichlorobenzene and Niagathal (Tetrachloro Phthalic Anhydride).

NIAGARA ALKALI COMPANY

60 East 42nd Street, New York 17, N. Y.

LIQUID CHLORINE • CAUSTIC POTASH • CARBONATE OF POTASH • PARADICHLOROBENZENE • CAUSTIC SODA • NIAGATHAL (TETRACHLORO PHTHALIC ANHYDRIDE)

AWARDS

Army Awards Made

N. Y. QM Purchasing Office

Awards have been made on:

QM-30-280-49-1189 covering various Paper Items, to:

Technical Tape Corp., Morris Heights, N. Y.—141,268 rolls (Tape, Masking, Adhesive Pressure, Sensittve, Creped, ½" Wide, 1" Wide, and also 2" Wide) from: $.2399 to $.8799.

Angier Corp., Framingham, Mass.—104 rolls (Paper, Wrap, Greaseproof, 24" wide, 250 feet) @ $6.45.

Norfolk Paper Corp., New York City—15,000 reams (Paper, Wrap, Tissue No. 1 Manila 24 x 36) @ $1.225.

Boston Paper Board Co., Boston, Mass.—7,266 rolls (Paper, Wrap, Kraft, 24" W., 9" diameter) @ $.05545 per lb. 5,036 rolls (Paper, Wrap, Kraft, 36" W., 9" diameter) @ $.05545 per lb. 35,220 rolls (Tape, Gummed, Sealing, 2" width and 3" widths) @ $.4646 and $.309 per roll.

Newark Paraffine & Patchment Paper Co., Newark, N. J.—1,364 rolls (Paper, Wrap, Greaseproof, Creped 36" wide) @ $8.73.

Industrial Tape Corp., New Brunswick, N. J.—6,216 rolls (Tape, Masking, Adhesive, Pressure, Sensitive, Creped, 1" wide) @ $.520. 19,236 rolls (same as above, 2" wide) @ $1.04.

Kimberly Clark Corp., Neenah, Wisc.—7,884 rolls (Wadding, Cellulose, Creped, 24 Ply, 24¼" wide, 145 Lin. Ft.) @ $5.25.

Sterilek Co., Inc., New York City—14,210 rolls (Wadding, Cell, Creped, 20 Ply, 20" wide, 99 Ft.) @ $2.52. 6,420 rolls (Wadding, Cell. Creped, 40 Ply, 20" wide, 66 Ft.) @ $3.39.

This procurement is for the U. S. Air Force.

One award has been made on:

QM-30-280-49-1203 covering Paper, Recording Teletype, Folder, and Paper teletype, flat fold, to American Lithofold Corporation, 120 Wall Street, New York 5, N. Y.—10,000 boxes 2 ply Paper, Record, Teletype, and 1,600 boxes of Paper, Teletype, 3 ply. Price $5.46 (2 ply paper) and $9.08—(3-ply paper). This procurement is for the U. S. Army.

QM-30-280-49-1089 covering various types, colors and sizes of Paper Items (Manifold, Sulphite; Typewriter; Tag; Cover Stock; etc.), to:

Riegel Paper Corp., N.Y.C.—12,863 reams (T/W Manifold) from: $1.60 to $6.37.

Frontenac Paper Corp., N.Y.C.—16,250 reams (T/W Bond) from: $2.171 to $6.743.

Old Dominion Paper Co., Norfolk, Va.—62 reams (Paper, Tag—24 x 36") @ $14.24.

Brownville Board Co., Inc., Brownville, N. Y.—63 reams, same as above) @ $13.06.

Frank Parsons Paper Co., Inc., Wash., D. C.—875 reams (Book) @ $5.87 and $7.12.

Whitaker Paper Co., Baltimore, Md.—3,890.5 reams (Cover Stock) from: $10.55 to $13.65.

Kennelly Paper Co., N.Y.C.—625 reams (Tag) @ $12.84 and $25.68.

Columbia River Paper Mills, Portland, Ore.—2,350 reams (T/W) from: $1.63 to $5.31.

Bermingham & Prosser Co., N.Y.C.—28,925 reams (Book) from: $6.03 to $20.61.

Walker-Goulard-Plehn Co., N.Y.C. — 18,921 reams (various) from: $1.59 to $23.58.

Bulkley, Dunton Co., Inc., N.Y.C.—13,050 reams (various) from: $.2903 to $18.222.

This procurement is for the U. S. Army.

Navy Awards Made

N. Y. Navy Purchasing Office

Award has been made on Inv. No. 4517 covering Paper, Waxed, wet process, 521,560 lbs. (approximately), to: Fabricon Products of Connecticut, Inc., Bridgeport, Conn. Quantity awarded: 497,960 lbs. from: $.1065 to $.1171 lbs. (1%—20 days). NOTE: remaining purchases—small amounts.

FINANCIAL RECORD

PREFERRED STOCKS	Per Share Earnings Calendar Year 1948	Per Share Earnings 12 Mo. to Approx. 3/31/49	Indic. Annual Divid. Rate	June 14 Approx Market Price
Armstrong Cork Co. $3.75 Cum.	$46.33*	$46.33*	$3.75	94⅜
Armstrong Cork Co. $4.00 Cum. Conv.	46.33*	46.33*	4.00	106⅝
Celotex Corp. 5% Cum.	26.42e	21.22g	1.00	16⅜
Champion Paper & Fibre $4.50 Cum.	61.80j	61.80j	4.50	91¾
Container Corp. of Amer. 4% Cum.	105.41	104.24	4.00	94
Crown Zellerbach $4.20 Cum.	56.40f	63.54g	4.20	96¼
Crown Zellerbach $4.00 Cum. Conv. 2nd	53.96f*	60.21g*	4.00	90
Dixie Cup Co. $2.50 Cum. Conv. Cl. A	10.10	11.71	2.50	46¼
Flintkote Co. $4 Cum.	83.25	74.66	4.00	99½
Robert Gair Co., Inc. 6% Cum.	17.08	15.96	1.20	14⅜
International Paper Co. $4 Cum.	263.00	265.18	4.00	95
Johns-Manville $3.50 Cum.	209.89	217.72	3.50	103½
Kimberly Clark Corp. 4½% Cum.	80.74	77.94	4.50	104¾
Kimberly Clark Corp. 4% Cum. Conv. 2nd	41.59*	46.40	4.00	90
MacAndrews & Forbes 6% Cum.	62.23	62.60	6.00	134
Mead Corp. 4½% Cum.	73.46	71.12	4.25	71½
Mead Corp. 4% Cum. Conv. 2nd	29.91*	28.84*	2.00	29⅞
Paraffine Cos. Inc. 4% Cum. Conv.	156.11	158.51	4.00	103⅛
Rayonier Inc. $2 Cum.	16.43	15.72	2.00	26⅝
St. Regis Paper Co. 4.40% 1st A	79.90	68.10	4.40	81½
Scott Paper Co. $3.40 Cum.	59.06	66.09	3.40	92
U. S. Gypsum Co. 7% Cum.	314.45	314.18	7.00	178
United Wallpaper Inc. 4% Cum. Conv.	(d)0.79	15.44	2.00	23⅛
West Virginia Pulp & Paper 4½% Cum.	79.45e	77.54d	4.50	104¼

COMMON STOCKS				
APW Products Co.	$0.73	$0.22	$0.25	2⅜
American Writing Paper Corp.	(d)0.15	(d)0.15	0.25	3½
Armstrong Cork Co.	7.54	n.a.	3.00	38¾
Celotex Corp.	7.21e	5.75g	2.00	16⅝
Certain-Teed Prods. Corp.	4.02	3.57	1.00	9⅜
Champion Paper & Fibre	5.57f	6.09j	2.00	18⅝
Congoleum Nairn Co.	5.78	n.a.	2.25	25⅝
Container Corp. of America	10.12	9.98	4.50	28
Crown Zellerbach	6.81f	7.26g	2.00	20⅝
Dixie Cup Co.	6.70	8.11	1.00	25
Eastern Corp.	4.76	3.10	1.00	8¼
Flintkote Co.	5.86	5.13	2.50	32
Robert Gair Co., Inc.	2.67	2.48	0.70	5
Great Northern Paper Co.	4.63	5.12	2.80	32⅝
International Paper Co.	16.73	16.87	5.00	42⅛
Johns-Manville Corp.	5.22	5.42	2.00	53
Kimberly Clark Corp.	5.02	4.83	1.65	17¾
MacAndrews & Forbes Co.	3.68	3.70	2.50	31⅞
Marathon Corp.	4.11c	3.76o	1.40	17½
Mead Corp.	6.36	6.10	2.00	13⅛
National Container Corp.	2.28	1.80	0.40	5⅛
Paraffine Cos. Inc.	2.45	2.49	1.20	15⅝
Rayonier, Inc.	9.09	8.64	2.00	21½
Ruberoid Co.	11.80	9.87	3.25	41⅝
St. Regis Paper Co.	2.71	2.27	0.80	6⅜
Scott Paper Co.	4.15	4.68	2.50	52
Sutherland Paper Co.	6.02	5.24	2.50	30¼
Union Bag & Paper Corp.	9.17	8.21	3.50	20
United Board & Carton	4.95	(d)10.35i	(e)	43⅜
U. S. Gypsum Co.	15.04	15.03	6.00	91¾
United Wallpaper	(d)0.10	0.42	(n)	3
West Virginia Pulp & Paper	11.33e	10.93d	4.00	36⅛

(a) Year ended 6/30/48
(b) Year ended 5/30/48
(c) Year ended 10/30/48
(d) Deficit
(e) Omitted dividend 2/4/49
(f) Year ended 4/30/48
(g) 12 months to approximately 1/31/49
(h) 12 months to 2/5/49
(i) 12 months to approximately 4/30/49
(j) 8 months to 12/31/48
(n) Last payment 25c, 9/16/47
n.a. Not available

(*) Earnings per combined preferred shares.

Dividends Declared

Great Lakes Paper Co. has declared a dividend of 25 cents a share on its common shares for June as against payment of 40 cents a share on March 31 and quarterly since the last quarter of 1947. It also declared a regular 62½ cents a share on its preferred A, and 30 cents a share on its preferred B, all payable June 30 to holders of record June 10.

Puget Sound Pulp & Timber Co. has declared a dividend of 50 cents a share on its common stock, payable June 30 to holders of record June 17.

Celanese Corp. of America has declared a dividend of 60 cents per share on its common stock, payable June 30, to holders of record June 17. At the same time the board voted regular quarterly dividends for the current quarter of $1.18¾ on the first preferred stock, $4.75 series, and $1.75

A Magic Carpet... for You!

The Elof Hansson organization maintains offices in:

Gothenburg
London
Sao Paulo
Rio De Janeiro
Buenos Aires
Mexico City
Bombay
Shanghai
Johannesburg
Capetown

and representatives in all key cities throughout the world!

This international organization serves as a magic carpet in bringing buyers and sellers of paper and woodpulp together quickly and profitably. Our intimate world-wide affiliations—branch offices and personal representatives—are your contact with all markets. As importers and exporters of paper and woodpulp, Elof Hansson, Inc. is staffed to serve you efficiently regardless of where you are located. May we tell you more about our facilities and what they can mean to you?

ELOF HANSSON, INC.

220 EAST 42ND STREET NEW YORK 17, N. Y.

per share on the seven percent second preferred stock, both payable July 1 to holders of record June 17.

Briefs Stockholders on New Products

NEW YORK — John L. Riegel, president of the Riegel Paper Corp., has sent to stockholders swatches of five new papers manufactured by the firm. They are: (1) Tangerine glassine for cheese chip bags, (2) Lacquer coated pouch stock for Silex coffee packages used by restaurants, (3) Triplex laminated sheet of blue glassine and foil, specially developed to provide high resistance to cocoanut oil and moisture (adopted as an inner lining for Baker's cocoanut), (4) Wallboard tape, a new paper for the building industry, having a very low coefficient of expansion and contraction, and (5) Laundry tag paper, a sheet which remains strong when wet and which is used by laundries to identify garments during washing or dry-cleaning. The swatches were enclosed in a folder made of Riegel's Crystallon cover.

Dividend Payments Show Slight Rise

WASHINGTON — Publicly declared dividend payments for the paper and printing industries had a combined total of $10,500,000 in April, 1949, compared with $10,400,000 in April, 1948, the Department of Commerce reports. Payments were not segregated as to the two industries.

June Report of Merchant Inventories in Number of Days Sales

Source: Paper & Twine Ass'n.

	Kraft	Butch.	Groc. Bags	Gum. Tape	Ind. Towels	Wrap. Tissue	Toilet Paper
Indiana	60	60	30	30	60	30	45
"	60	60	30	30	45	120	30
"	14	30	30	30	20		30
Illinois	60	60	40	30	35	45	45
"	120	75	60	60	30	90	60
"	30	10	20	20	60	60	30
"	20	60	30	30	45	45	45
Iowa	60	45	30	15	30	30	45
Kentucky	30	45	45	30	15	45	60
Michigan	60			60	45	120	45
"	60	60	60	30	60	30	60
"	45	60	30	50	40	60	50
Ohio	30	45	30	60	30	7	60
"	90	90	120	60	45	90	45
"	30	60	60	10	15	60	45
"	30	30	20	30	20	30	30
"	60	30	30	60	45	60	60
"	40	30	90	60	30	60	60
"	60	60	45	60	45	60	45
Wisconsin	60	60	60	45	60	60	60
"	90	60	45	60	30	30	60
"	28	28	10	7	10	14	14
"	30	60	30	10	30		10
"	60	60	30	60	45	75	50
"	30	30	90	30	10		10
"	44	24	60	54	12	52	21
"	20	45	60	30	30	30	45
"	60	30	30	60	90	90	30
"	60	60	60	30	30	10	30
"	120	30	45	90	45	30	30
"	30	40	60	25	20	30	30
"	30	30	30	15	45	45	15
"	35	30	55	40	35	40	30

Building

- **FOR THE PAPER INDUSTRY**
- We design, build, and equip paper and pulp mills ... steam generating plants ... and facilities for eliminating stream pollution.
- Under one contract and one responsibility, we deliver jobs complete, ready for operation.
- We also furnish engineering reports and surveys. Current cost data available at all offices.

The H.K. Ferguson Co.
INDUSTRIAL ENGINEERS AND BUILDERS

THE FERGUSON BUILDING • CLEVELAND, OHIO
OFFICES IN NEW YORK, HOUSTON, CHICAGO, CINCINNATI AND LOS ANGELES

AMERICAN PAPER AND PULP ASSOCIATION'S PRODUCTION RATIO REPORT*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1949		Corresponding Weeks—1948	
April 30	83.5	May 1	103.5
May 7	84.6	May 8	102.4
May 14	82.4	May 15	100.4
May 21	80.2	May 22	100.3
May 28 (Revised)	83.2	May 29	98.9
June 4	*77.7	June 5	*92.9

* Capacity in Tons—179,806. * Capacity in Tons—178,983.

COMPARATIVE MONTHLY SUMMARIES

1948						1949	
Jan.	100.1	May	100.5	Oct.	99.1	Jan.	94.6
Feb.	99.8	June	95.7	Nov.	97.1	Feb.	92.8
Mar.	100.8	July	85.3	Dec.	87.1	Mar.	89.1
Apr.	100.8	Aug.	96.8			Apr.	85.1
		Sept.	91.8	Year Avg.	96.2	May	282.6

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1942	1943	1944	1945	1946	1947	1948	1949
Year to Date	100.3	88.9	88.4	88.8	100.0	105.3	100.5	88.6
Year Average	90.4	87.8	88.1	89.4	101.1	104.3	96.2	

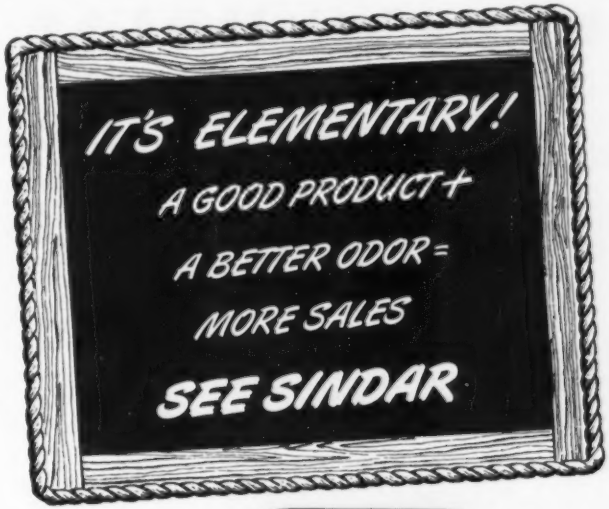
PAPERBOARD OPERATING RATIOS†

Current Weeks—1949		Corresponding Weeks—1948	
April 30	80	May 1	102
May 7	78	May 8	101
May 14	79	May 15	100
May 21	77	May 22	100
May 28	77	May 29	100
June 4	65	June 5	87

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1948	99	100	102	102	100	94	81	92	91	96	94	84	95
1949	88	85	79	79	78								

* All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

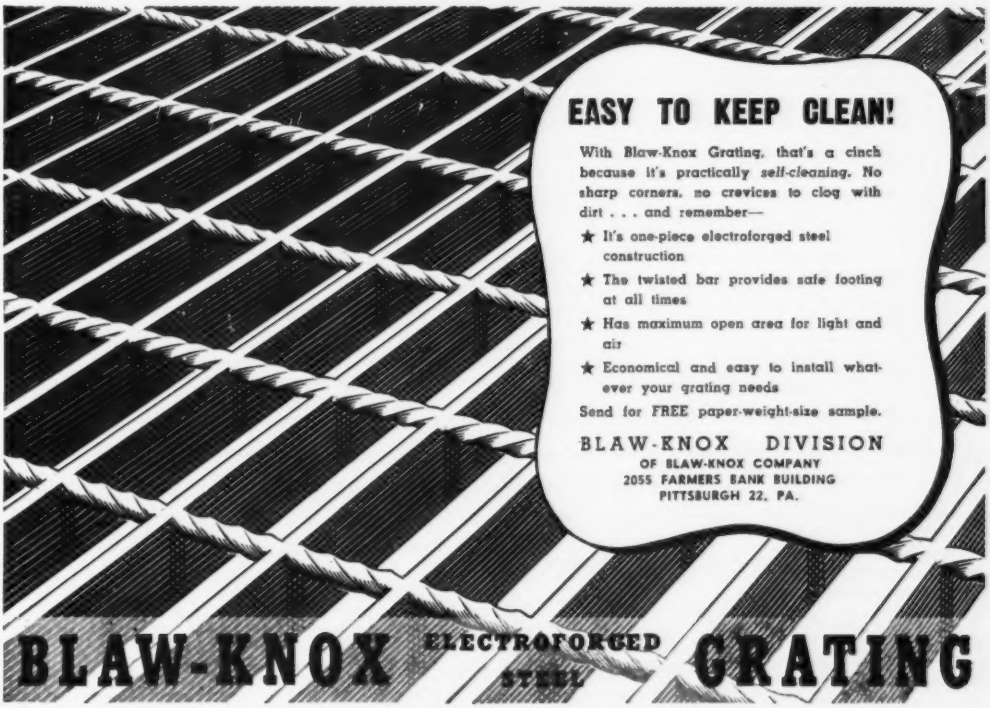


SINDAR Corporation

Industrial Aromatics and Chemicals

330 West 42nd Street • New York 18, N. Y.

Branches: Philadelphia, Boston, Cincinnati, Detroit, Chicago, Seattle, Los Angeles, Montreal, Toronto


EASY TO KEEP CLEAN!
With Blaw-Knox Grating, that's a cinch because it's practically *self-cleaning*. No sharp corners, no crevices to clog with dirt . . . and remember—
★ It's one-piece electroforged steel construction
★ The twisted bar provides safe footing at all times
★ Has maximum open area for light and air
★ Economical and easy to install whatever your grating needs
Send for FREE paper-weight-size sample.
BLAW-KNOX DIVISION
OF BLAW-KNOX COMPANY
2055 FARMERS BANK BUILDING
PITTSBURGH 22, PA.
BLAW-KNOX ELECTROFORGED STEEL GRATING

CLEARING HOUSE

HELP WANTED

MEN WANTED
Positions Open

General managers and general superintendents for western mills; chemists and laboratory men.

Mechanical engineers; millwright; stationery sales man acquainted with department stores and stationers in Mass., R. I. and Conn.; beater engineers; machine tenders and back tenders.

Mechanical engineer for New England mill, salary range, $4000 to $5000 year.

We invite correspondence (confidential) with mills seeking executives and with executives seeking new positions.

CHARLES P. RAYMOND SERVICE, Inc.
294 Washington Street, Boston, Mass.

SALARIED POSITIONS $3,500—$35,000

If you are considering a new connection communicate with the undersigned. We offer the original personal employment service (39 years recognized standing and reputation). The procedure, of highest ethical standards, is individualized to your personal requirements and develops overtures without initiative on your part. Your identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

TF

MASTER MECHANIC

An eastern mill manufacturing folding grades has just installed a new paperboard machine. We are interested in employing a master mechanic with a good background of steady employment and one who has the ability to properly direct a maintenance organization. Good compensation and permanent future are offered. Write in complete detail. Address Box 49-286, care Paper Trade Journal. J-23

WANTED—BEATER ENGINEER with experience in the preparation of stock for cylinder machine products. Mill located in Massachusetts. Write Box 49-272 care Paper Trade Journal. J-16

WANTED—Experienced first class machine tenders and back tenders for cylinder machine. Must be experienced in high grade boxboards. In reply, please give references. Address Box 49-288 care Paper Trade Journal. J-30

PAPER BAG SUPERINTENDENT for large Eastern Plant. Long experience. Intimate, personal knowledge of paper bag machine mechanics. Operation and maintenance essential. Give full details and salary required. Address Box 49-289 care Paper Trade Journal. J-16

HELP WANTED

Design Engineer-Installation drawings and detail for Southern mill. Knowledge steam pipe detail, structural steel, concrete, conveyors, etc.

Instrumentation engineer for southern mill; Asst Chief Engineer for design development in east.

Listings desired from mills seeking executives. We are exclusive representatives for pulp and paper industry for the Employment Counselors Assn. with representatives in 40 principal cities.

RICE EMPLOYMENT AGENCY
Radio Center Building
Little Rock, Arkansas

J-16

SITUATIONS WANTED

PAPER BAG SUPERINTENDENT wishes to make change. 25 years experience in Glassine, etc. Address Box 49-293 care Paper Trade Journal. J-23

MECHANICAL ENGINEER—27 years experience in the pulp, paper and board industry in engineering and production supervision. Qualified to modernize and operate. Invites correspondence. Address Box 49-281 care Paper Trade Journal. Jy-7

BEATER ROOM FOREMAN — Intensive color training—eleven years with nation's finest mill. All grades including rag bonds. Address Box 49-291 care Paper Trade Journal. J-16

GENERAL SUPERINTENDENT 30 YEARS PRACTICAL EXPERIENCE manufacturing highest grade specialties light and heavy weight paper on Fourdriniers, all kinds box board on Cylinders from sulphite, sulphate, groundwood, soda pulp, de-inked papers. Can get quality and production. Best of references. Age 53 years. Address Box 49-294 care Paper Trade Journal. J-30

PLANT MANAGER—Thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 49-298 care Paper Trade Journal. J-30

FOR SALE

For Sale

Slitters & Rewinders; Die Cutters; Printers; Scorers & Creasers; Gluers & Wrappers; Coaters; Laminators; Waxers; Stitchers.

Write for latest bulletin listing available paper box & paper converting machinery.

South Wabash Engineering Co.
2929 S. Wabash Ave., Chicago 16, Ill.

TF

PAPER COATING MACHINERY MANUFACTURERS — Waxing, Oiling, Carbon, Laboratory Coating and Treating Machines. New improvement. MAYER MACHINE COMPANY, Inc., 1313 Buffalo Road, Rochester 11, N. Y. TF

FOR SALE

FOR SALE or RENT

Paper Mill with 3 Fourdrinier Machines, complete with auxiliary equipment. Designed for 60 tons of Specialties, News, Book, Toweling, Kraft, etc. Can be put in operation immediately. Covers 80,000 Sq. Ft., Buildings fully sprinklered, Railroad Sidings, excellent water, 1800 H. P. stoker-fired water tube Boilers installed 1936. Excellent labor conditions. All located within radius 100 miles New York City, Baltimore, Washington. Immediate possession. Attractive proposition!
Address Box 49-300, care Paper Trade Journal. J-16

FOR SALE—106" Beloit 4 Ply Board Paster with 72" cut-off knife or with larger knife if necessary. Priced right for immediate sale. Address Box 49-246 care Paper Trade Journal. TF

GOOD VALUES—NEW & USED

34" Beck Sheeter, one year old.
58" and 78" Hamblet Sheeters.
34" Camachine No. 6 Slitter.
32" Hobbs and 34" Inman shear cut Slitters —very cheap.
39" Chandler & Price Automatic Power Paper Cutter.
New 44" National Auto. Power Cutters and 36" National Hydraulics.
Baling Presses—both hand and power.
Brackett 3-knife Trimmer.
28 x 41 Thomson Cutter & Creaser.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18
(Plant at Stamford, Conn.)

TF

FOR SALE

A 26" Five-Color Roto-Gravure Press in excellent condition at a genuine bargain price complete with drive, extra parts and special tools. For complete information, write Box 49-220, care of Paper Trade Journal. J-16

FOR SALE—Two Hoe Folders, shear cut, Model #1766 and one double French make folder. All in good working condition. Will sell at fair price. L. J. Gold, 5151 N. Lake Drive, Milwaukee, Wis. WOodruff 2-3875. J-30

FOR SALE—13 Wet Machine Felts—28' x 72" (Shuler and Benninghofen—Style 761). All new and in original wrapping. Located in New York State. Advise best offer. Address Box 49-290 care Paper Trade Journal. J-23

STOCK, FIXTURES & ACCOUNTS of southern coarse paper house for sale at replacement cost. Address Box 49-270 care Paper Trade Journal. J-30

RATES FOR CLASSIFIED ADVERTISING

HELP WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

SITUATIONS WANTED—10c a word, double rate for heavy face type. Minimum charge $2.50. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—10c a word. Double rate for heavy face type. Minimum charge $2.50.

WANTED—10c a word. Double rate for heavy face type. Minimum charge $2.50.

OPPORTUNITIES—10c a word. Double rate for heavy face type. Minimum charge $2.50.

Classified advertising space may also be purchased at $5.00 per single column inch. All classified advertisements are payable in advance. If box number is used—70 cents additional.

Address replies to advertisements appearing under Box Numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

FOREFINGER OPERATION

At the Fairfield Paper Company, Baltimore, Ohio, everything is under remote control. By actual count there are 8 multiple-panel boards, 5 single-panel boards and several console type—forefinger operation right down the line.

Fairfield actually operates by push button the following B-C-S-D equipment—practically everything in the mill.

Continuous Hydrapulper	Batch Hydrapulper	Miami Agi-Flo Pumps	Dryer Sections
Junk Remover	Hydrafiner *(Remote handwheel control)*	Selectifier Screens	Calenders
Ragger	Miami Jordans	Vat Section	Reels
Grit Remover System	Motorized Valves	Presses	Machine Drives

Calender Reversing Drives

Typical of other post-war mills is the one here cited—and in line with the amazing shift since the war from manual to push button operation.

Older mills, medium size and smaller mills, often can electrify certain of their operations without too much bother or expense—steps they certainly should consider.

CONTACT BLACK-CLAWSON, SHARTLE OR DILTS

THE BLACK-CLAWSON COMPANY

HAMILTON, OHIO

Divisions:
SHARTLE BROS. MACHINE CO., MIDDLETOWN, OHIO
DILTS MACHINE WORKS, FULTON, NEW YORK
Western Sales Office: Mayer Bldg., Portland, Oregon
Associate: ALEXANDER FLECK LIMITED, Ottawa, Canada
Subsidiary: B-C INTERNATIONAL, LTD., 16 Catherine Place Victoria, London, S. W. 1, England

FOR SALE

FOR SALE

FOR SALE

FOR SALE

BALER
1—1000 lb. Economy with motor
1—Ohio
BEATERS
1—66 x 84" Jones iron tub with perforated backfall and ragger, new in 1940, new roll in 1945
1—62 x 58" Valley Iron Works iron tub
2—1000 lb. Jones breaker
2—Rabus, rolls 75 x 55", bronze filled
1—44 x 42" Jones
SUPER CALENDERS
1—108"; 1—82"; 1—74"; 1—60"
SHEET CUTTERS
1—130" Horne duplex layboy
1—124" new Hamblet with duplex layboy and two 10 roll backstands which take 50" dia. rolls
1—104" Beloit duplex
1—100" Hamblet duplex with layboy
1—94" Clark with layboy
1—82" Dilles duplex with folder
1—90" Hamblet
1—70" Hamblet with layboy
1—64" Hamblet with ten roll backstand
REAM CUTTERS
1—86" Smith & Winchester
1—50" Oswego
1—48" Acme

1—39" Seybold
DRYERS
1—12 ft. x 186" Yankee
1—58" Oswego
1—48" Acme
1—39" Seybold
DRYERS
1—12 ft. x 186" Yankee
1—12 ft. x 132" Yankee
2—8 ft. 174" Yankee
1—48" x 89" Yankee
DRYERS continued
5—60 x 174"
3—48 x 119"
3—48 x 106"
2—42 x 73"
1—48 x 71"
Section of 21—36 x 76", now operating
Section of 16—36 x 62", now operating
Section of 15—48 x 48"
Section of 4—54 x 48"
Section of 2—36 x 48" copper
Section of 3—28 x 40"
EMBOSSING MACHINES
45" Dornbusch, three sets rolls
30" Waldron
28" Textile, three sets rolls

PASTING MACHINE
1—40" and 1—60"
PRESS PART
With rolls from 24" x 144" to 14" x 42" with frames, etc.
PULPER
1—Number 2 Lannoye
PUMPS
2—12 x 12" Goulds triplex
1—8 x 12" Goulds triplex
2—6 x 10" Goulds triplex
SCREENS
Bird No. 3 A
Birg No. 2 A
Bird No. 2
Bird B A
Jones Leith Walk
Moore & White
PAPER MACHINES
1—94" trim Tissue with 8 ft. dia. dryer
1—74" trim Fourdrinier with special bevel gear drive
WASHER CYLINDER (Octagon)
2—44" x 43½" Face with iron work
ROTOGRAVURE MACHINE
1—28" with 21 motors, excellent, five color, anti-friction

FRANK H. DAVIS CO. 175 Richdale Ave., Cambridge, Mass. TF

FOR SALE
FIBRE CAN BUSINESS

Now operating 40,000 ft one floor R.R. siding Metropolitan NYC. Fully equipped to manufacture metal end, paper end and fancy cosmetic containers. Present volume $400,000, equipped to triple that. Good backlog of business. Plant includes spiral and convolute winders, metal press dept., dies, automatic can seamers, labeling, slitting, cutting, drum heading, paper curling, die cutting depts., also complete tool, die and machine shop. For sale at fraction of original cost. We will negotiate with principals only: Address Box 49-295 care Paper Trade Journal.—J-16.

FOR SALE

1—Triple Effect Zaremba Evaporator, 84" diameter, each effect 1200 sq. ft. of heating surface, 440—1" steel tubes, 2 tilt traps, 2 moisture separators, interconnecting piping and barometric condenser. traps and 3 liquid level controllers. Vacuum pumps are not included. Available for immediate shipment. May be inspected at any time.
2—#420 Black & Clawson 10" x 16" Triplex Geared Stock Pumps, bronze fitted, belt drive, 20" x 10" pulley.
2—Pusey & Jones Triplex Stock Pumps, 10" diameter cylinder, 20" stroke, 25 revolutions of crank shaft will throw 460 gallons. Pumps driven on jack shaft arrangement, gear and pinion drive.
1—Duo-arrangement comprising Van de Carr patent stock inlet combined with 2 standard slices of 14" and 8" high standard design with center and end adjustment supports on adjustable side frames. Stock inlet Pusey & Jones design, 30" high, equipped with motor driven direct-connected perforated distributor roll, adjustable device for leveling the sheet, adjustable deckle in-plates, gauge plate and necessary supporting frames.
3—Washer Cylinders, 42" diameter x 84" face.
24—Brass Table Rolls, 7" diameter x 196" face, equipped with Timken Roller Bearings #375-372.

Address Box 49-277, care Paper Trade Journal. J-16

FOR SALE OR LEASE

Small Paper Mill-Cylinder Machine. Situated advantageously to sources of raw material and sales outlet. Terms. Address Box 49-297 care Paper Trade Journal. J-23

FOR SALE—One 114" Duplex Cutter and one 65" Duplex Cutter, both with knife, available immediately. Address Box 49-296 care Paper Trade Journal. J-16

WANTED

WANTED
COMPLETE CYLINDER MACHINE
TO TRIM APPROXIMATELY
90 INCHES BOARD.
Principals only.
Address Box 49-167, care Paper Trade Journal. J-16

WANTED

ONE USED OR NEW EMBOSSING MACHINE 50 to 60" WIDE. FURNISH FULL INFORMATION. General Gummed Products, Inc., P.O. Box, 98, Richmond Hill 18, N. Y. J-16

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic presses, Sheridan Presses, Dryers. Address Box 49-273 care Paper Trade Journal. TF

PAPER MANUFACTURER desire to purchase or invest in converting business of standard paper products. Address Box 49-274 care Paper Trade Journal. TF

WANTED—Brightwood Box Machine. Address Box 49-275 care Paper Trade Journal. TF

WANTED—Several sets of Indenting Rolls, also two cement or flour bag machines, regardless of age or condition. Address Box 49-260 care Paper Trade Journal. J-16

WANTED—Multi-spindle or Revolving Reel, about sixty inch face, or could use two or three reels with adjusting screws and bearings, but without stands. Address Box 49-259 care Paper Trade Journal. J-16

TISSUE PAPER MACHINE WANTED; or will buy output of a tissue mill. Address Box 49-285 care Paper Trade Journal. J-9

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SALES REPRESENTATIVE, single, thirty-four, desires industrial sales position, salary and expenses, prefer continuous traveling with an active established company. Address Box 49-265 care Paper Trade Journal. TF

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Established firm of Paper converters in South Africa designs to contact U.S.A. organization with a view to commencing a tissue mill in the Union. Will consider participations in the form of plant suitable for manufacturing of crepe tissue and thin M.G. Papers. Suggestions invited. Address Box Number 49-299, care Paper Trade Journal. J-16

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BRINGS

RESULTS

FOR SALE

1—102" Cameron Type 18—60" diameter rewind capacity.

BARKERS
1—5' Carthage Disc Barker

BEATERS
1—800 lb Beater—iron tub

BEATERS (Laboratory)
2—Dilts Iron Tub Laboratory Beaters. Beater rolls 14" diameter x 10½" face, including motors.

BRASS FELT ROLLS
9—4" diameter x 140" face (with bearings)

BREAST ROLLS
1—100" x 14".
1—114" x 14".
1—120" x 14"

CALENDER STACKS
1—72" 5 roll Calendar Stack.
1—76" 7 roll calender stack (heavy duty).

CHIPPERS
2—96" Murray 4 knife Chippers.

CYLINDER MOULDS
1—36" diameter x 80" face.
1—30" diameter x 72" face.
1—36" diameter x 79" face.

DECKER
1—Decker—48" diameter x 84" cylinder mold

DRIVES
2—#4 Reeves Drives.
1—#2 Reeves Drive.
1—Smith & Winchester mortise gear Drive.
1—Foote—7½ h.p. Speed Reducer (Ratio 240 to 1)
2—Smith & Winchester Mortise Gear Drives with 26" diameter clutches—Ratio 8 to 1.
7—Enclosed drives, 75 h.p., ratio 7 to 1. Complete.

DRIVES (Angle)
1—General Machine Company 16 : 1.
1—Philadelphia 50:1 — 1 h.p. — 1200 r.p.m.
2—Philadelphia 21½:1 — 3 h.p. — 1200 r.p.m.

V-BELT DRIVE
1—81½" diameter x 7¼" face, 5 groove.
1—16½" diameter x 7½" face, 8 groove. (With clutch).

DRYERS
30—36" diameter x 102" face.
50—42" diameter x 126" face.
9—36" diameter x 76" face.
1—48" diameter x 91" face.
1—48" diameter x 94" face.
8—85" x 120" (Baby Dryers).
2—36" x 143".
1—24" x 130".

EMBOSSER
1—84" Hudson Sharp Toilet Embosser. Spare engraved roll.

FLAT SCREENS
1—6 plate Shartle Flat Screen.
1—8 plate Packer Type Flat Screen.
2—12 Plate Murray Dunbar Flat Screens.
2—14 plate Sandy Hill. (Never used.)

FRICTION CALENDERS
2—30" Waldron.
2—38" Waldron.

HYDRAULIC PRESS
1—Watson-Stillman Co. (Platen 24" x 24").

JORDANS
1—Noble & Wood, Pony Monarch, Belt Driven.
2—Noble and Wood—Mammoth Type
1—Emerson Jordan—25 to 30 tons capacity —iron plug including new spare iron plug.

MISCELLANEOUS
1—Caustic Mixer.

MOTORS
2—5 h.p. ball bearing—splash proof motors —3/60/440, 1160 r.p.m.
1—½ h.p. ball bearing—splash proof gear-head motor—3/60/440, 1725 r.p.m.
1—2 h.p. ball bearing—splash proof gearhead motor—3/60/440, 1725 r.p.m.

PRESS ROLLS
Various sizes.

PRINTING MACHINE
1—3 color 40" Rotary Cottrell Printing Machine, A-1 condition, provision for 2 more colors.

PULLEYS
Various cone and assorted pulleys.

PULP STACKER
1—Link Belt Company Pulp Stacker, 30 ft. conveyor, 2½ ft. wide, self propelled, with motors

PULPER
1—Jones Pulper. Complete with motor and drive.

PUMPS
2—Weil Pump Co.—100 g.p.m.—100 P.S.I. including 15 h.p. motors (new equipment).
1—Bell & Gossett—300 g.p.m.—120' head—including 15 h.p. motor.
1—Goulds Sump Pump—50 g.p.m.—20' head —including motor.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REEL
1—72" Beloit Reel.

ROLLS
500—Brass tube-steel tube—rubber covered iron rolls—various sizes

ROTARY SCREENS
1—#2 Bird Rotary Screen.
1—#2A Bird Rotary Screen.

SAVEALL
1—Pusey & Jones Saveall. Cylinder mold 42 x 146, anti friction bearings, including rubber covered couch roll.
1—#5 Bird Saveall.

SCREEN PLATES
40 Plates cut .010.
10 Plates cut .008.
Also other sizes and cuts in stock

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1—136" Moore & White Sheeter, duplex, with layboy.

SLITTERS AND WINDERS
1—208" Cameron—Type 20.
1—84" Cameron—Type 18.
1—102" Cameron—Type 18.
1—72" Cameron—Type 28-8-7-D (shear cut)
1—62" Cameron—Type 10-10-AJ.
1—50" Cameron—Type 24-2E.
1—42" Cameron—Type 40-4-B.
1—48" Cameron—Type 28-8-7 (shear cut).
1—42" Cameron—Type 24-2A.
1—42" Cameron—Type 9-5.
1—42" Cameron Constant Tension, with pneumatic control.
1—30" Langston.
1—62" Cameron—Type 6 (Shear cut).

SQUEEZE ROLLS
2—Rubber Squeeze Rolls, 20¾" diameter x 102" face.

STOCK PUMPS
1—10 x 20 Shartle Duplex.
4—7 x 16 Shartle Duplex.
Numerous other Centrifugal Stock Pumps Advise as to your requirements.

SUCTION BOXES
5—Suction Boxes, 82" drilled face x 6" wide.

SUCTION COUCH ROLL
1—Sandusky 14⅛" diameter x 103" drilled face.

SUCTION PRESS ROLL SHELL (Only)
1—29¾" diameter x 134" drilled face.

SUPERCALENDER STACK
1—54" 9 roll supercalender stack, completely rebuilt including motors, etc.

TABLE ROLLS
40—Table Rolls 82" face x 3" diameter.

TRIMMER
1—56" Smith & Winchester—Undercut.

TUNNEL DRYERS
2—Proctor & Schwartz Tunnel Dryers, 10 ton and 5 ton capacity.

TURBINE
1—150 h.p. Westinghouse Type C-Gear Turbine (Recently rebuilt).

VACUUM PUMPS
1—#4 Nash Hytor Vacuum Pump.

VAT
1—Iron end Vat only, for decker or saveall, suitable for cylinder mold 36 x 130.

YANKEE DRYERS
1—8 diameter x 175" face.

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THE SUPERINTENT'S NUMBER OF

PAPER TRADE JOURNAL

WILL BE JUNE 23, 1949

FOR SALE

1—Fourdrinier Machine. Voith inlet. Wire 121″ x 61′ 5½″. 22″ suction couch. One suction press—two conventional presses—one smoothing press. 21 dryers 60″ diameter, and four felt dryers 48″. One 8-roll and one 10-roll calender stack. One 2-drum upright slip belt reel. One 2-drum winder. Spiral bevel gear drives.

1—Fourdrinier Machine, wire 110″ x 60′. One Millspaugh 22″ suction couch. Two main presses. 29—dryers 48″ diameter. One 9-roll calender stack. One 2-spool reel. Bevel mortise gear drive.

1—Fourdrinier Machine. Wire 106″ x 55′ 10½″ long. Millspaugh suction roll—22″ diameter. Beloit shake. Two conventional presses. 26 dryers—48″ dia. x 102″ face, with double deck frames, bearings, gears. Calender stack. Reel Beloit uniform speed reel, drum 42″ x 102″. Winder, 2-drum Warren. Drives, Black-Clawson totally enclosed, with complete set of variable speed lineshaft.

1—Yankee Fourdrinier Machine, wire 90″ x 38′ 5″. Millspaugh suction couch. Yankee dryer 10′ 6″ diameter with pressure roll, frames, etc., 4 After Dryers 48″ x 96″. English type reel. Warren Winder. D. C. Driving motor.

1—Fourdrinier Machine, wire 81″ x 50′. Millspaugh suction couch. Two main presses. One lead dryer and 18 dryers 36″ diameter and two felt dryers. Three-roll calender. One two-spool reel. One M & W Winder. Spiral bevel gear drives.

1—6-cylinder machine moulds 36″ x 100″ wide. Beloit suction drum roll. Four pair primaries. Three main presses. 66 dryers 42″ diameter. Two calender stacks. One Black-Clawson duplex cutter. One two-spool upright reel. Spiral bevel gear drives.

Cutters

1—78″ Hablet single cutter

1—109″ Hamblet duplex cutter

1—110″ Black-Clawson heavy duty cutter

1—110″ Beloit duplex cutter and slitter

1—114″ Beloit duplex cutter

1—116″ Dowingtown duplex cutter and slitter

1—124″ Beloit duplex cutter and slitter

Winders

1—116″ Moore & White—4-drum—will wind 60″ dia. rolls

1—120″—Warren—2-drum

Reels

1—144″—two-spool upright

1—116″—Uniform speed reel—Beloit

1—132″—2-spool — Black-Clawson—upright reel

Calender Stacks

1—5-roll Black-Clawson calender stack—54″ face

1—14″ dia.—3—8″ dia.—1—12″ dia. rolls

1—5-roll Lobdell calender stack—box type frame. Water cooled bearings—Dillon Doctors. 84″ face. 1—16″—3—10″—1—12″ dia. rolls.

1—5-roll heavy duty calender stack—84″. 1—16″—3—10″—1—12″ dia. rolls—10″ bored for steam.

1—7-roll heavy duty calender stack—82″ wide. 1—18″—5—12″—1—16″ dia. rolls—bored for steam.

1—5-roll heavy duty calender stack—92″ wide. —1—20″—3—12″—1—16″ dia. rolls—bored for steam.

1—9-roll heavy duty calender stack—92″ wide. 1—20″—2—14″—5—9″—1—12″ dia. rolls—bored for steam.

1—4-roll heavy duty calender stack—104″ wide

1—7-roll heavy duty calender stack—108″ wide

1—11-roll heavy duty calender stack—108″ wide

1—9-roll heavy duty calender stack—124″ wide

Several Hundred Calender Rolls—All Sizes—54″ to 143″ face

Super Calender Stacks

1—7-roll super calender stack—54″ wide

1—7-roll super calender stack—74″ wide

Dryers

34—M & W dryers—48″ x 126″

36—Dowingtown dryers—42″ x 126″—triple deck frames, bearings and gears

25—M & W dryers—36″ x 94″, with bearings, gears, double deck frames, all felt carrying equipment

27—M & W dryers—(7—36″ x 86″) with bearings, gears, (20—36″ x 82″) double deck frames and all felt carrying equipment.

Double Deck Frames

Black-Clawson double deck framework, gears, bearings for 12 dryers.

Presses

3—pr. 18″ x 86″ Press rolls complete with frames, housings and bearings

3—pr. 18″ x 96″ Press rolls complete with frames, housings and bearings. Have dryer section to match above press rolls

2—pr. 18″ x 108″ Press rolls complete with frames, housings and bearings

SHARTLE BROTHERS MACHINE CO.

MIDDLETOWN, OHIO

J-23

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Suction Rolls

3—Beloit suction presses—18″ x 72″

1—Millspaugh suction couch—14-9/16″ x 88″

1—Millspaugh suction couch—18″ x 110″

2—Downingtown suction presses—22″ x 124″ (New)

1—Millspaugh suction couch shell—22″ x 138″

1—Millspaugh suction couch—22″ x 140″

1—Beloit suction couch—30″ x 184″

Cylinder Moulds

11—Cylinder moulds—36″ x 124″, with 10″ diameter cast iron core. Shaft equipped for anti-friction bearings.

Extractor Rolls

1—Downington—24″ diameter x 123″ face extractor roll

1—Dowingtown rubber covered couch—17″ dia. x 124″ face, complete with framework, housings and bearings. New rubber covering on couch.

Beaters

1—Dayton iron tub beater—Roll—61″ dia. x 60″ face. Bandless keyed roll. Steel shaft. 60 bars, every other bar scalloped. 16″ outside operated dump valve. 6″ washout.

1—Dilts cast iron tub—1500# beater—roll 52″ x 52″

2—Dayton iron tub beaters—1 L. H. and 1 R. H.—roll 48″ dia. x 54″ face. R. H. roll has 66 bars. L. H. roll has 70 bars. Bandless keyed roll. Texrope drive. These beaters were just recently rebuilt.

Jordans

4—Noble & Wood Mammoth

1—#2 Miami—with 125 HP Crocker Wheeler Induction motor. 3 Ph.—60 cy.—440 volts 168—rated capacity—1050 CF. at 10″.

1—Jones Majectic

2—#2 Appleton

1—#1 Emerson

2—Jones Standard

4—Noble & Wood Monarchs

2—#2 Black-Clawson

2—Noble & Wood Pony

1—Noble & Wood Experimental

Classifiners

3—Dilts Classifiners

Flat Plate Screens

6—12-plate Packer screens—good condition

2—10-plate Harmon flat plate screens

1—10-plate Improved flat plate screen

Vacuum Pumps

2—#L9 Nash vacuum pumps

6—#L7 Nash vacuum pumps—mounted on common base, direct connected to Louis Allis—50 HP—3 ph.—60 cy.—440 volt motors. Silencers—Model—MUC—size—168—rated capacity—1050 CF. at 10″. Used 6 months. Perfect mechanical condition.

1—#L6 Nash vacuum pump—Air pressure and relief valve. Used less than a month. Is equal to new machine.

1—Connersville—12″ x 18″

1—Connersville—16″ x 24″

Wet Machine

1—72″—Rodgers wet machine — cylinder mould—48″ x 74″ face—couch roll—20″ dia. x 76″ face—felt covered—Presses—Top—Iron—16″ dia. x 73″ face—Bottom—Steel—18″ dia. x 78″ face—Felt rolls—17—76″ face—various diameters—Felt stretch. Complete with stands, frames, bearings, and housings.

Hydraulic Press Pumps

2—Single acting, Class K. H.—Pot valve & Pressure pumps. 1—1¾″ x 8″—49 RPM—1—2½″ x 10″—49 RPM

Wire & Felt Rolls

We have a very large stock of various size rolls of all types. 60—wire & Felt rolls—7″ dia. x 86″ face—A1 condition.

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3—D. C. James herringbone right angle reducing drives—ratio—12.5—1 — almost new

2—Lewellyn drives—size 114—vertical—variable speed 3 to 1—almost new

1—Link Belt—VG-2—variable speed—ratio 2 to 1

1—Reeves variable speed drive—#4D—ratio 5 to 1

1—Reeves variable speed drive—#5E—ratio 4 to 1

1—Reeves variable speed drive—#5F—ratio 3 to 1

2—Falk—#6DB—ratio 36.05 to 1

3—Falk—#5DB—ratio 29.05 to 1

3—Falk—#5DB—ratio 24.47 to 1

Bailers or Paper Presses

1—Ohio Cultivator Co.—size 17″ x 22″ paper press

1—Adco 17″ x 22″ paper press—#P-508

1—Economy's—27″ x 54″—by third dim. up to 27″—#54

Grinder

1—112″—Seybold Knife Grinder

SHARTLE BROTHERS MACHINE CO.

MIDDLETOWN, OHIO

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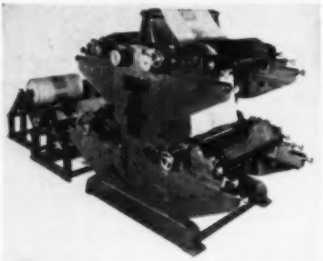

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Frederick Iron & Steel, Inc.
Hamblett Machine Co.
Hardinge Company, Inc.
Lobdell Co.
Magnus Metal Corp.
Michigan Steel Casting Co.
The Midvale Company
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Walworth Company

Centrifugal Machinery

Bird Machine Co.
Ross, J. O., Engrg. Co.
Shartle Brothers Machine Co.

Chains

American Manganese, Steel Div.
Chain Belt Company
Link Belt Company

Chemical Cotton Pulp

Hercules Powder Co.

Chemicals

Adell Chemical Co.
Alhydro, Inc.
American Anode, Incorporated
American Cyanamid Co., Industrial Chem. Div.
Anaul Chemical Co.
Calco Chemical Co.
Calgon, Inc.
Cowles Chemical Company
Diamond Alkali Co.
Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuffs Corp.
Geigy Co., Inc.
Gottesman & Co.
Hercules Powder Co.
Hooker Electrochemical Co.
The Kinsley Chemical Company
Monsanto Chemical Company
National Aluminate Corp.
Niagara Alkali Company
Nopco Chemical Co.
Pennsylvania Salt Mfg. Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co., Columbia Chemical Division
Rohm & Haas Co.
Solvay Sales Corp.
Virginia Smelting Co.
Witco Chemical Co.
Wyandotte Chemical Corp.

Chests

Kalamazoo Tank & Silo Co.

Cleaning Materials

Adell Chemical Company
Amer. Cyanamid & Chem. Corp.
Cowles Chemical Company
The Dow Chemical Company
E. I. du Pont de Nemours & Co., Inc.
General Dyestuff Corp.
Hercules Powder Co.
Monsanto Chemical Company
Nopco Chemical Co.
Philadelphia Quartz Co.
Pittsburgh Plate Glass Co.
Solvay Sales Corp.
Wyandotte Chemicals Corp. J. B. Ford Division

Clutches

Appleton Machine Co.
Black-Clawson Company
Farrel-Birmingham Co.
Hardinge Company, Inc.
Hudson Sharp Machine Co.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works

Coating Machinery

Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Hudson Sharp Machine Co.
The Mayer Machine Co., Inc.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corporation, John
Weber, Herman G., & Co., Inc.

Coating Materials

American Anode Div., The B F. Goodrich Chem. Co.
E. I. Du Pont De Nemours & Co., Inc.,
The Goodyear Tire & Rubber Company
Monsanto Chemical Company
Nopco Chemical Co.

Cogs

The N. P. Bowsher Co.

Compounded Latices

American Anode Div., The B F. Goodrich Chem. Co.

Compressors

Allis-Chalmers Mfg. Co.
Ingersoll-Rand Co.
Nash Engineering Co.

Consistency Regulators

Askania Regulator Company
Bird Machine Company
DeZurik Shower Company
Paper & Industrial Appliances

Consulting Engineers

Birk, F. Paul
Ebasco Services
Frank W. Egan & Co.
Ferguson, Hardy S.
C. M. Guest & Sons
Hardy, George F.
Alvin H. Johnson & Co., Inc.
Main, Inc., Chas. T.
Roderick O'Donoghue
The Rust Engrg. Co.
J. E. Sirrine & Co.
John Waldron Corp.
H. G. Weber & Co., Inc.
Frederick Wierk

Controllers

Askania Regulator Company
Black-Clawson Co.
The Bristol Co.
The Brown Instrument Co.
Cochrane Corp.

Controls

Askania Regulator Company
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
Johnson Corp.
Midwest-Fulton Machine Co.
Stickle Steam Specialties Co.

Conveyors

American Well Works
Black-Clawson Company
Chain Belt Company
Frederick Iron & Steel, Inc.
Industrial Brownhoist Corp.
Link Belt Company
Murray, D. J., Mfg. Co.
Ross Engineering Corp., J. O.
Shartle Brothers Mch. Co.

Core Cutters

Suburban Machine Co.

Cores

Elixman Paper Co.
Hubbard Spool Co.
Rodney Hunt Machine Co.
Smith & Winchester Mfg. Co.
Seneco Products Co.
Walker-Goulard-Plehn Co.

Couplings

Black-Clawson Company
Farrel-Birmingham Co., Inc.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John

Cranes

Cleveland Crane & Engrg. Co.
Industrial Brownhoist Corp.
Link Belt Company
Whiting Corp.

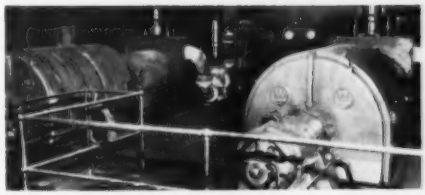
Cup and Container Machines

Mercury Engrg. Corp.

Cutters

Dilts Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Moore & White Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
Taylor Stiles & Co.

PAPER MFRS. ATTENTION



Above Cut Shows our 2-2500-KVA., Westinghouse Non-cond'g. Turbo-Generators. Very High Grade Modern Machines: Shaft Exciters.

Specifications

TURBINE

Manufacturer	Westinghouse
Capacity	2000-KW
Steam, Initial	250-psi.
Speed	3600-RPM

GENERATOR

Manufacturer	Westinghouse
Capacity	2000-KW.
Volts	3/60/2300
Amps	628

Water Rates at 250 -0 SH. 2# Back: Good for 40# BP. with slight changes.

KW. Load 1000-27.1:1500-KW.25.85:2000-KW.26.2-KWHr.
Our Other Specialties: Turbo-Generators, All capacities Diesel Power, Boilers.

Other Available Paper Mill Turbines

Non-condensing

1500-KW. 200#—30-BP—480-v.
1250-KW. 200#—25-BP—480-v.
750-KW. 200#—25-BP—480-v.
500-KW. 200#—25-BP—480-v.
500-KW. 200#—25-BP—2300-v.

IMMEDIATE DELIVERY

ACT PROMPTLY

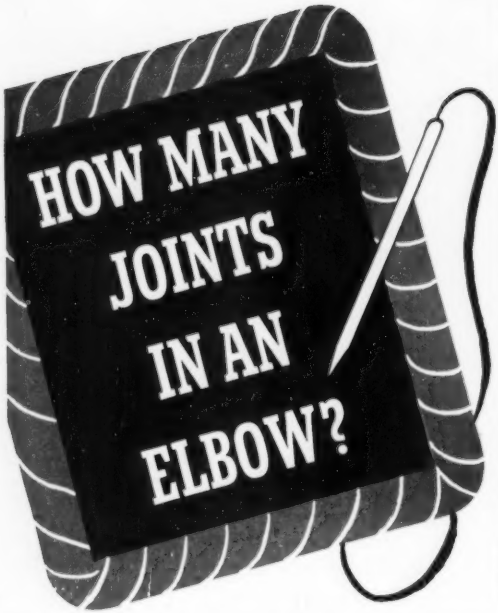
Non-condensing Paper Mill Turbines are always hard to locate when wanted.

Correspondence Invited

CHARLES WEAVER

4145 Penobscot Building

Detroit 26, Michigan



Two with ordinary pipe but only **one** if you are using ARMCO Welded Steel Pipe. The ARMCO method of "tailoring" pipe and fittings to the job saves you time and money on plant piping.

With ARMCO Pipe you eliminate at least one pair of flanges at every bend. Standard or prefabricated special fittings — tees, wyes, elbows, reducers — come welded to straight pipe runs. This saves hours of tedious assembly, means less labor and material costs. Savings up to 25 or 30 per cent are not unusual and maintenance is bound to be small. Fewer flanges mean less chance for leaks and there are no threads to invite corrosion.

ARMCO Welded Steel Pipe will meet your every requirement. Diameters range from 6 to 36 inches; wall thicknesses from 9/64- to 1/2-inch. Uniform lengths run up to 50 feet. Ask us for specific data regarding that next piping job. Armco Drainage & Metal Products, Inc., Welded Pipe Sales Division, 1185 Curtis Street, Middletown, Ohio. Export: The Armco International Corporation.

ARMCO WELDED STEEL PIPE

WHERE TO BUY

Cylinders
Askania Regulator Company
M. W. Jenkins Sons, Inc.
National Tube Co.

Dampeners
Perkins & Son, Inc., B. F.
Valley Iron Works Co.

Deasphalting Chemicals
Adell Chemical Company

Deckle Webbing
Williams-Gray Co.

De-Inking
Adell Chemical Company
Dilts Machine Works
General Dyestuff Corp.
Kinsley Chemical Co.
Roderick O'Donoghue
Shartle Brothers Machine Co.

Deinking Chemicals
Adell Chemical Company
E. I. Du Pont De Nemours & Co., Inc.
General Dyestuff Corp.
Kinsley Chemical Co.
Midwest-Fulton Machine Co.
Monsanto Chemical Company
Philadelphia Quartz Co.

Densometers
W. & L. E. Gurley

Design Construction
Ebasco Services

Detergents
Adell Chemical Company
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Philadelphia Quartz Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Dewaxing Chemicals
Adell Chemical Company
General Dyestuff Corp.
Nopco Chemical Co.

Digesters
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
Combustion Engrg. Co., Inc.
Foster Wheeler Corp.
Lukenweld
Pusey & Jones Corp.

Dirtec
Bird Machine Co.

Dispersing Agents
Adell Chemical Company
Calgon, Inc.
General Dyestuff Corp.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.

Doctors
Bird Machine Company
Black-Clawson Company
Downingtown Mfg. Co.
Lobdell Co.
Lodding Engineering Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Doctor Blades
Bird Machine Company
Black-Clawson Company
Lodding Engrg. Corp.
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Driers
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Hardinge Company, Inc.
Lukenweld
The Moore & White Co.
Murray Mfg. Co., D. J.
I. J. Ross Company
Red-Ray Mfg. Co., Inc.
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.
The Youngstown Welding & Engrg. Co.

Drives
Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Chain Belt Company
Davis, Frank H., Co.
Dilts Machine Works
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Farrel-Birmingham Co.
General Electric Company
Gibbs-Brower Company, Inc.
Rodney Hunt Machine Co.
Link Belt Company
Moore & White Co.
Murray, D. J., Mfg. Co.
Pusey & Jones Corp.
I. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Syco Mfg. Co.
Valley Iron Works Co.
Westinghouse Electric Corp.

Dryer Drainage
Midwest-Fulton Machine Co.
Stickle Steam Specialties Co.

Dusters
Appleton Machine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
M. W. Jenkins Sons, Inc.
E. D. Jones & Son Co.
Moore & White Co.
D. J. Murray Mfg. Co.
John Waldron Corp.

Dusting Brushes
M. W. Jenkins Sons, Inc.

Dyestuffs
American Cyanamid Company, Calco Chemical Div.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuffs Corp.
National Aniline Division, Allied Chemical & Dye Corp.
C. K. Williams & Co.
Witco Chemical Co.

Embossing Rolls
The Appleton Machine Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Midvale Company
Northern Engraving & Mch. Co.
B. F. Perkins & Son, Inc.
John Waldron Corp.

Emulsifiers
Adell Chemical Company
General Dyestuff Corp.
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

Enzymes
Rohm & Haas Co.

Evaporators
Davis Engrg. Corp.
Foster Wheeler Corp.
Goslin Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

Expanders
Mount Hope Machinery Co.

Fans
General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

Feeders
Hardinge Company, Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup

Felts
Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.
Williams-Gray Co.

Felt Cleaners
Adell Chemical Company
Calgon, Inc.
Cowles Chemical Co.
General Dyestuff Corp.
Nopco Chemical Co.

Felt Conditioners
Bird Machine Co.

Felt Guides
Black-Clawson Co.
Frank W. Egan & Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co
Waldron Corp., John

Fillers
American Cyanamid Company, Industrial Chemicals Division
W. H. Loomis Talc Corp.
A. M. Meincke & Son, Inc
Vanderbilt Co., R. T.
Witco Chemical Co.

Filters
Bird Machine Company
Cochrane Corp.
Hardinge Company, Inc.
Johnson Corp.
Moore & White Co.
J. O. Ross Engrg. Corp
Witco Chemical Co.
Walworth Company

Fittings
Crane Company
The Kuhns Bros. Co.
Phoenix Products Co
Walworth Company

Flexible Couplings
Ajax Flexible Coupling Co.

Flooring, Grating and Treads
The Goodyear Tire & Rubber Company
Norton Co.

Flow Boxes, Stainless-Clad
Lukens Steel Co.

Forming Machines
Black-Clawson Co.
Downingtown Mfg. Co.
The Moore & White Co.
Noble & Wood Machine Co
Oliver United Filters, Inc.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co

Freeness Testers
Testing Machines, Inc.

Gaskets
The Goodyear Tire & Rubber Company

Gears
American Manganese, Steel Div.
Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co
Smith & Winchester Mfg. Co
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Corp.

Grinders
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Works

Grinding Wheels
Norton Company

Guides, Web
Askania Regulator Company
The Moore & White Co.
Mount Hope Machinery Co.
Bound Brook Engrg. Co.

Gums
National Starch Products Inc.
Stein Hall Co., Inc.

Heads
Babcock & Wilcox Co.
Lukens Steel Company

Heat Exchangers and Recovery Systems
William Allen Son's Company
Davis Engrg. Corp.
Foster Wheeler Corp.
Midwest-Fulton Machine Co.
Stickle Steam Specialties Co
Westinghouse Electric Corp.

Heating, Ventilating & Air Conditioning
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
Davis Engrg. Corp.
E. D. Jones & Sons Co.
General Electric Co.
Leeds & Northrup
Minneapolis-Honeywell Regulator Co.
D. J. Murray Mfg. Co.
Red-Ray Mfg. Co., Inc.
Ross Engineering Corp., J. O
Stickle Steam Specialties Co
Valley Iron Works Co.
Westinghouse Electric Corp

Hose (Air, Water, Suction, etc
The Goodyear Tire & Rubber Company

Impregnants
American Anode Div., The B F. Goodrich Chem. Co.

Industrial Tractors
Clark Equipt. Co., Clark Tractor Div.
Towmotor Corp.

Ink Gravure
Gotham Ink & Color Co.

Instruments, Testing and Measuring
Askania Regulator Company
Bauer Brothers Co
N. P. Bowsher
The Bristol Company
The Brown Instrument Co
E. J. Cady Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Photovolt Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Williams Apparatus Co., Inc.

Joints
Johnson Corp.
Perfecting Service Corp.

Jordan Fillings
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co
Valley Iron Works Co.

Knives
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
The Moore & White Co.
Taylor Stiles & Co.
Valley Iron Works Co.

Knot Boring Machines
DeZurik Shower Company

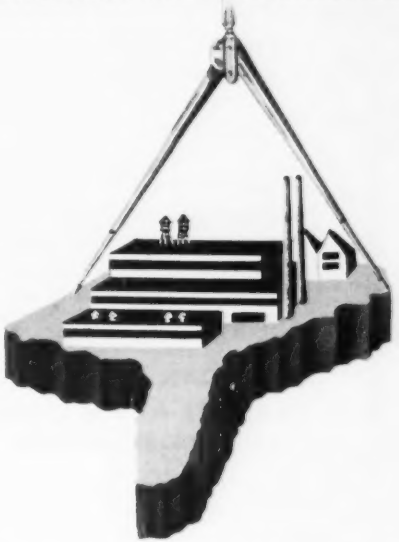
Laboratories
Timber Engrg. Co.

Laboratory Equipment
William Allen Son's Company
Appleton Machine Co.
Bauer Brothers Co.
The Bigge Boiler Works Co
Bird Machine Company
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works Co.

Lay Boys
Gibbs-Brower Company, Inc
Hamblet Machine Co.
Moore & White Co.
Suburban Machine Co.

The Southeast

LOGICAL REGION FOR YOUR INDUSTRIAL EXPANSION



The list of new and expanded industries in the Southeast covers the widest possible range of enterprise. That's not surprising, because here there's *room to grow*—plus other definite advantages such as easy access to many kinds of raw materials, adequate labor resources, modern utilities, and a climate that favors year-round operations.

Seaboard, serving this progressive area, looks forward to serving you, too . . . with its modern freight and passenger facilities so adaptable to every phase of your business. Choice plant sites along Seaboard's busy route are available now. A brief outline of your plans will bring you without obligation a factual, informative survey of one or more "likeliest locations" for your specific requirements. May we hear from you? Please address:

Dallas T. Daily, General Industrial Agent
Seaboard Air Line Railroad Company, Norfolk 10, Va.

YES! GO WEST!
1949 Fall Meeting TAPPI
Portland, Oregon

SEABOARD
AIR LINE RAILROAD COMPANY

THROUGH THE HEART OF THE SOUTH

GUM ROSIN

A PRODUCT OF THE LIVING PINE

USERS of GUM ROSIN prefer this excellent product because it is made from the gum of the *living pine tree*—the *original, standard* rosin.

The finest rosin that can be produced, GUM ROSIN is available with a high degree of uniformity to meet industrial needs. All standard color grades – consult your local supplier for prices and specifications, or write

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General Offices: **VALDOSTA, GEORGIA**

Cowles

NU-NAP

FELT WASHING DETERGENT

Cowles NU-NAP contains a new combination of products and a brand new idea in detergent action. NU-NAP does an outstanding washing job on paper machine felts—both on and off the machine NU-NAP will give extra life to your felts—it leaves them unusually clean—fluffy and absorbent.

Use NU-NAP for dependable—safe—free rinsing felt washing.

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COWLES CHEMICAL COMPANY

Formerly The Cowles Detergent Company

PAPER CHEMICAL DIVISION

7016 EUCLID AVE. CLEVELAND 3, OHIO

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Lubricants
Sinclair Refining Co.
Socony-Vacuum Oil Co.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

Materials Handling
Cleveland Crane & Engrg. Co.
Frank G. Hough Co.
The Wellman Engrg. Co.

Micrometers & Calipers
E. J. Cady Co.
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

Moisture Content Control
Askania Regulator Company
Midwest-Fulton Machine Co.
Stickle Steam Specialties Co.

Motors and Generators
Allis-Chalmers Mfg. Co.
Chicago Electric Company
Fairbanks, Morse & Co.
General Electric Company
Ingersoll Rand Co.
Reliance Electric & Engrg. Co.

Nickel and Nickel Alloys
The International Nickel Co.

Nozzles
Link Belt Company

Packing Boxes
Johnson Corporation
The Moore & White Co.
Perfecting Service Corp.
Shartle Brothers Machine Co.

Paint
American Marietta Co., Valdura Division

Paper Machines
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

Paper Machine Slices
Black-Clawson Company
The Moore & White Co.
The Sandy Hill Iron & Brass Works
Valley Iron Works Co.

Paper Tube Machinery
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Suburban Machine Co.

Pasting Machines
Black-Clawson Company
Davis, Frank H., Co.
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John

Penstocks
The Biggs Boiler Works Co.

Perforated Metal
Allis-Chalmers Mfg. Co.

Pipe
American Cast Iron Pipe Co.
Armco Drainage & Metal Products, Inc.
Babcock & Wilcox Co.
Crane Company
Michigan Pipe Co.
Michigan Steel Casting Co.
National Tube Co.
Walworth Company
Youngstown Welding & Engrg. Co.

Pipe Fittings
American Cast Iron Pipe Co.
The American Rolling Mill Co.
Crane Company
Ladish Company
Michigan Steel Casting Co.
Phoenix Products Co.
Walworth Co.

Pipe Markers
W. H. Brady Co.

Pitch Control
General Dyestuff Corp.
Monsanto Chemical Company
Rohm & Haas Co.

Platers
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

Plates
Armco Steel Corp.
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
J. O. Ross Engrg. Corp.
Lukenweld
Lukens Steel Company
Timken Roller Bearing Co.

Plugs
The Appleton Machine Co.
Black-Clawson Company
E. D. Jones & Sons Co.
Shartle Brothers Machine Co.

Precision Sample Cutter
Testing Machines, Inc.

Preservatives
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.

Pressure Vessels, Steel and Alloy
William Allen Son's Company
Babcock & Wilcox Co.
The Biggs Boiler Works Co.
Combustion Engrg. Co., Inc.
Foster Wheeler Corp.
The Midvale Company

Presses
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
The Moore & White Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

Pulp Classifier
The Bauer Bros. Co.

Pulp Stock Valves
Crane Company
Record Fdy. & Mach. Co.
Shartle Bros. Mach. Co.

Pulpers
American Paper Mchy. & Engrg. Works, Inc.
Bauer Brothers Co.
Dilts Machine Works
Midwest-Fulton Machine Co.
Shartle Brothers Machine Co.

Pulps
Brown Company
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co. (America), Inc.
Parsons & Whittemore, Inc.

Perkins Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.
Pulp Sales Corp.

Pulpstones
Norton Company

Pumps
Allis-Chalmers Mfg. Co.
American Manganese, Steel Div.
Black-Clawson Company
Buffalo Pumps, Inc.
Byron Jackson Co.
DeLaval Steam Turbine Co.
Dorr Company
Downingtown Mfg. Co.
Fairbanks, Morse & Co.
Frederick Iron & Steel, Inc.
Gibbs-Brower Company, Inc.
Ingersoll-Rand Co.
Johnson Corp.
Moore & White Co.
Nash Engineering Co.
Paper Converting Mch. Co.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company

Radiant Burners
Red-Ray Mfg. Co., Inc.

Rag Cooking Processes
Adell Chemical Co.
William Allen Son's Company
The Kinsley Chemical Company
General Dyestuff Corp.
Rohm & Haas Co.

Rag Cutters
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

Recaustiicizing Plants
The Dorr-Company

Recovery Systems
William Allen Son's Company
Babcock & Wilcox Co.
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

Reels
The Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Hudson Sharp Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

Refiners
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Midwest-Fulton Machine Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sutherland Refiner Corp.
Valley Iron Works

Regulators
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
DeZurik Shower Company
The Foxboro Company
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
Midwest-Fulton Machine Co.
Minneapolis-Honeywell Regulator Co.
National Technical Laboratories
Shartle Brothers
Stickle Steam Specialties Co.
Taylor Instrument Companies
Wallace & Tiernan

Research Chemists
Timber Engrg. Co.

Resins
American Cyanamid Company, Industrial Chemicals Division
The Dow Chemical Company
The Goodyear Tire & Rubber Company
Hercules Powder Co.
Monsanto Chemical Company
Rohm & Haas Co., Resinous Products Div.

Rolls
American Cast Iron Pipe Co.
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
Edward J. McBride
The Midvale Company
The Moore & White Co.
D. J. Murray Mfg. Co.
Perkins, B. F., & Sons Co.
Philbrick Engrg. Corp.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co
Valley Iron Works Co.
Waldron Corp., John
The Youngstown Welding & Engrg. Co.

Roll Covers
The Cincinnati Rubber Mfg. Co
The Goodyear Tire & Rubber Company
Edward J. McBride
Stowe-Woodward, Inc.

Roll Stands
Cameron Machine Co.
Frank W. Egan & Co.
Moore & White Co.
Potdevin Machine Co.
John Waldron Corp.
H. G. Weber & Co., Inc.

Rope Carriers
The Moore & White Co.

Rotary Boilers
The Biggs Boiler Works Co.

Rotary Steam Joints
Johnson Corp.
The Moore & White Co.
Perfecting Service Corp.

Rubber Products
The Goodyear Tire & Rubber Company

Saturants
American Anode Div., The B F. Goodrich Chem. Co.

Saturating Machines
Black-Clawson Company
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co
Waldron Corp., John
Weber, Herman G.

Savealls
Bird Machine Company
Hardinge Company

Scales
Fairbanks, Morse & Co.
Merrick Scale Mfg. Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

Screen Plates
Bird Machine Company
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co
Testing Machines, Inc.

Screens
Allis-Chalmers Mfg. Co.
American Paper Mchy. & Engrg. Works, Inc.
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Valley Iron Works Co.

Sheet Machines
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Suburban Machine Co.
Valley Iron Works Co.

Shower Pipes
Bird Machine Company
DeZurik Shower Company
Downingtown Mfg. Co.
Moore & White Co.
Sandusky Fdy. & Mch. Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

Shredders
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.

Sizing
American Cyanamid Company, Industrial Chemicals Division
Black-Clawson Company
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Glidden Company
Hercules Powder Co.
The Hubinger Co.
Monsanto Chemical Company
National Aluminate Corp.
Philadelphia Quartz Co.
Stein-Hall Co., Inc.

Sizing Tester
W. & L. E. Gurley

Slime Control
W. A. Cleary Corp.
The Dow Chemical Company
E. I. du Pont de Nemours & Co.
General Dyestuff Corp.
National Aluminate Corp.
Rohm & Haas Co.

Slitters
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Co.
Langston Co., Samuel M.
Machinery & Prod. Engrg. Corp.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Valley Iron Works Co.
Waldron Corp., John

Smoke Stacks
William Allen Son's Company
The Biggs Boiler Works Co.

Splicing Tissue
Williams-Gray Co.

Softness-Stiffness Tester
W. & L. E. Gurley
Testing Machines, Inc.

Soluble Oils
Adell Chemical Company
American Cyanamid Company, Industrial Chemicals Division
General Dyestuff Corp.
Nopco Chemical Co.

Solvents
Adell Chemical Company

Stainless Steel
American Cast Iron Pipe Co.
Armco Steel Corp.
Michigan Steel Casting Co.
The Midvale Company
U. S. Steel Corp.

Starch
American Cyanamid Company, Industrial Chemicals Division
A. M. Meincke & Son, Inc.
Clinton Industries, Inc.
The Hubinger Co.
National Starch Products Inc.
Stein-Hall Co., Inc.

Steam Joints
The Moore & White Co.

Steam Specialties
Babcock & Wilcox Co.
Cochrane Corp.
Combustion Engrg. Co., Inc.
Davis Engrg. Corp.
Johnson Corp.
Midwest-Fulton Machine Co.
Perfecting Service Corp.
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

Steel
Allegheny Ludlum Steel Corp.
Armco Steel Corp.
Carnegie Illinois Steel Co.
Lukens Steel Company
Midvale Company
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Works
U. S. Steel Corp.

Steel, Clad
Babcock & Wilcox Co.
Lukens Steel Company

Steel Tanks
William Allen Son's Company
The Biggs Boiler Works Co.

Strapping & Strapping Machines
The Stanley Works

Stuff Chests
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Midwest-Fulton Machine Co.
Moore & White Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Suction Boxes
Black-Clawson Company
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.

Suction Unit
Paper & Industrial Appliances, Inc.

Sulphur
American Cyanamid Company, Industrial Chemicals Division
Texas Gulf Sulphur Co.
Witco Chemical Company

Sulphur Burners
Valley Iron Works Co.

Sulphur Dioxide
American Cyanamid Co., Calco Chemical Div.
Anaul Chemical Company
Virginia Smelting Co.

Supercalenders
The Appleton Machine Co.
B. F. Perkins & Son, Inc.

Synthetic Latices
American Anode Div., The B. F. Goodrich Chem. Co.
The Goodyear Tire & Rubber Company
Nopco Chemical Co.

Tachometers
The Brown Instrument Co.

Tale
American Cyanamid Company, Industrial Chemicals Division
W. H. Loomis Talc Corp.

Tanks
William Allen Son's Company

WHERE TO BUY

The Biggs Boiler Works Co.
Cochrane Corp.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
B. F. Perkins & Son, Inc.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Waldron Corp., John

Tearing Testers
Testing Machines, Inc.

Tensile Testers
B. F. Perkins & Son, Inc.
Testing Machines, Inc.

Thickeners, Deckers and Savealls
The Appleton Machine Co.
Bird Machine Company
Bulkley, Dunton Pulp Co., Inc.
Carthage Machine Co.
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
Hardinge Co., Inc.
Moore & White Co.
D. J. Murray Mfg. Co.
Oliver United Filters, Inc.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Timber Roof Truss Designs
Timber Engrg. Co.

Titanium
American Cyanamid Co., Calco Chemical Div.
E. I. du Pont de Nemours & Co.
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

Tools
Ingersoll-Rand Co.
The Stanley Works
Walworth Company

Tractor Shovels
Frank G. Hough Co.

Tractors & Trucks
Frank G. Hough Co.
Townotor Corp.
Clark Equipt. Co., Clark Tractor Div.

Transmissions
Link Belt Company

Traps
Armstrong Machine Works
Cochrane Corp.
Crane Co.
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.

Tubes
Babcock & Wilcox Co.
National Tube Co.

Tubing, Mechanical
National Tube Co.

Tubs
Rodney Hunt Machine Co.
Shartle Brothers
Valley Iron Works Co.

Turbines
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.

Turpentine Recovery
Foster Wheeler Corp.

Used Equipment
Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
J. J. Ross Company
Ross Paper Machy. Corp.
Shartle Brothers Machine Co.
Suburban Machine Co.

Valves
Askania Regulator Co.
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
Crane Company
Dilts Machine Works
The Foxboro Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
William Powell Co.
Record Fdy. & Mch. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies
Trimbey Mach. Wks.
Valley Iron Works Co.
Walworth Company

Washers
Bird Machine Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
E. D. Jones & Sons Co.
Moore & White Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
Valley Iron Works Co.

Waste Treating Equipment
Alhydro, Inc.
The Dorr Company

Water Conditioning
Alhydro, Inc.
Calgon, Inc.
Cochrane Corp.
General Dyestuff Corp.
National Aluminate Corp.

Water Dispersions
Alhydro, Inc.
American Anode, Inc.
Rohm & Haas Co., Resinous Products Div.

Waxes
Hercules Powder Co.

Waxing Machinery
Black-Clawson Co.
Dilts Machine Works
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
The Mayer Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

Welding Equipment
General Electric Company
Walworth Company

Wet Machines
Black-Clawson Co.
Carthage Machine Co.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Moore & White Co.
Pusey & Jones Company
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

Wetting Agents
American Cyanamid Company, Industrial Chemicals Division
Adell Chemical Company
General Dyestuff Corp.
Hercules Powder Co.
Monsanto Chemical Company
Nopco Chemical Co.
Rohm & Haas Co.
Wyandotte Chemicals Corp.

White Water Heaters, Automatic self cleaning type
Davis Engineering Corp.

Winders and Rewinders
The Appleton Machine Co.
Black-Clawson Company
Cameron Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
Machinery & Prod. Engrg. Corp.
Moore & White Co.
Paper Converting Mch. Co.
Potdevin Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Works
Smith & Winchester Mfg. Co.
Suburban Machine Co.
Waldron Corp., John

Wire Brushes
M. W. Jenkins Sons Inc.

Wires
Appleton Wire Works
Bulkley, Dunton Pulp Co., Inc.
International Wire Works
Lindsay Wire Weaving Co.
Williams-Gray Co.

Wire Brushes
Williams-Gray Co.

Wood Splitters
The Appleton Machine Co.
Carthage Machine Co.

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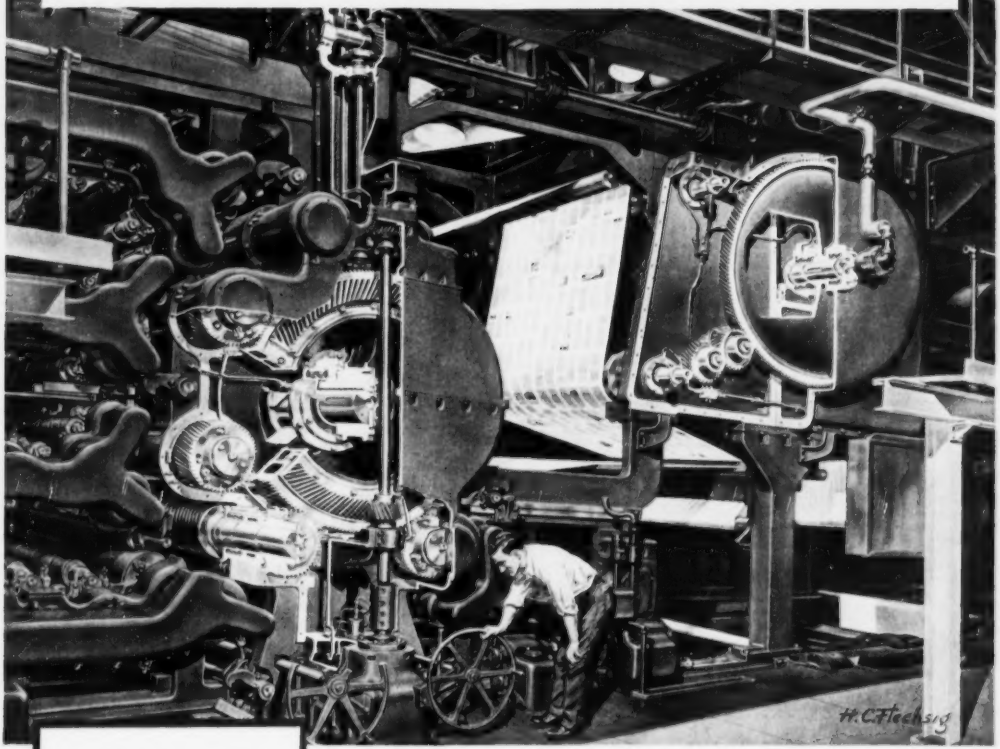

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